

NETWORK WORLD

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IBM plans Sept. product unveilings

By Paul Desmond
Senior Editor

IBM is planning to announce next month a host of products that are expected to include a new OS/2-based graphical interface and LU 6.2 support for NetView, as well as tools for managing distributed LANs.

Analysts said they also expect IBM to announce enhancements to its Open Systems Interconnection/Communications Subsystem, including support for local-area network connections to OSI applications and an X.400 electronic mail gateway.

The new IBM-developed NetView graphical interface promises to make the integrated network management system easier to use.

In addition, LU 6.2 support could make it easier to link non-IBM management systems to NetView and spur development of more sophisticated net management applications.

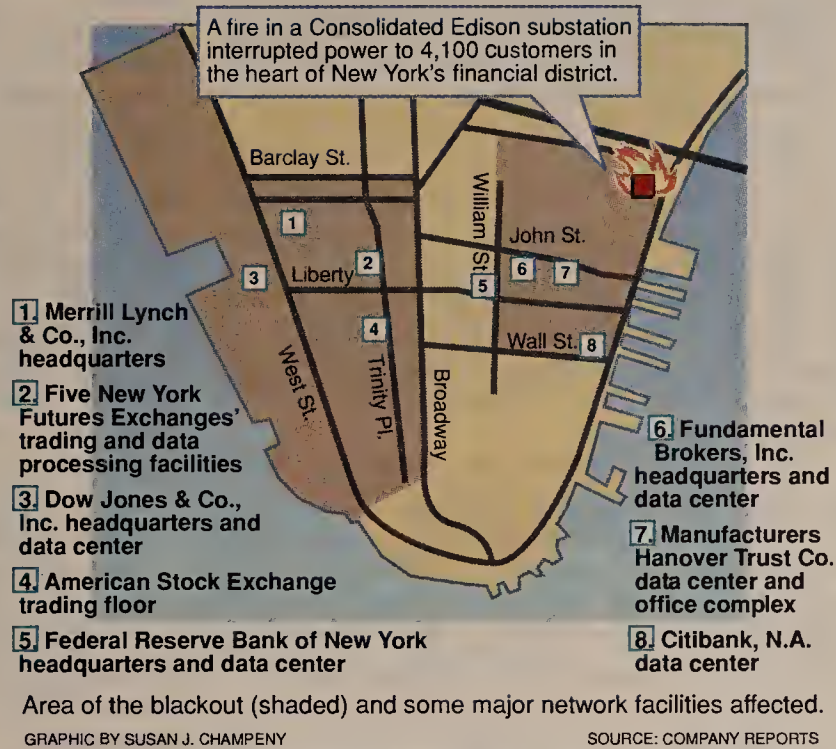
The new LAN management tools will enable users to monitor and control multiple distributed LANs from a central site.

IBM declined to comment on the upcoming announcements.

According to Dick Boyle, program director at Gartner Group, Inc., a consultancy in Stamford, Conn., IBM's homegrown graphi-

(continued on page 49)

New York outage wreaks havoc with nets



Performance limits push NetWare users to upgrade

By Laura DiDio
Senior Editor

PROVO, Utah — Users are migrating in increasing numbers to Novell, Inc.'s NetWare 386 because a design limitation in earlier versions of the network operating system has made it difficult for them to expand LANs without suffering performance problems.

As users add network interface cards, printers, large disk storage subsystems and memory-intensive applications to Intel Corp. 80286-based NetWare file servers, performance degrades

and, in some instances, the server may lock up.

The problem stems from memory constraints imposed by the 80286 microprocessor. Because of those constraints, NetWare can utilize only a small amount of memory for its file service processes (FSP), which handle requests from client workstations for various net services, including print, file and application services.

As the network grows, FSPs contend for memory, delaying

(continued on page 49)

Manhattan blackout cripples user nets

Users resort to disaster plans after Con Ed fire darkens heart of New York's financial district.

By Barton Crockett
Senior Editor

NEW YORK — A massive power outage in lower Manhattan disrupted vital financial networks last week, delaying billions of dollars in funds transfers, shutting down trading firms and exchanges, and forcing dozens of users to implement disaster recovery plans.

A three-hour blaze last Monday in a Consolidated Edison Co. of New York, Inc. (Con Ed) power station cut off electrical service to about 4,100 customers in the city's financial district. Net operations were halted or disrupted at such financial heavyweights as the Federal Reserve Bank of New York, the American Stock Exchange, Citibank, N.A. and Dow Jones & Co., Inc.

While service to most users was restored within eight hours, nearly 1,600 Con Ed customers were expected to suffer outages lasting up to six days. Users were forced to cut over generators or move to their own backup data centers or disaster recovery facilities operated by such firms as Comdisco Recovery Services, Inc. and SunGard Recovery Services, Inc. Some were forced to shut down completely.

Comdisco said a record 10

customers declared disasters and moved operations to its facilities, more than during the October 1989 San Francisco earthquake, (continued on page 48)

U.S. losing ground

Worldwide market share in selected telecommunications categories

	1984	1987
Data PBXs	100%	36%
Statistical multiplexers	94%	35%
Fiber optics	75%	50%
Modems	49%	37%
Central office switching	30%	24%
PBXs	29%	26%

NTIA urges reforms to improve U.S. competitiveness in world network market, story page 6.

SOURCE: U.S. DEPARTMENT OF COMMERCE GRAPHIC BY SUSAN SLATER

TCA product rollout set by Timeplex

By Bob Brown
Senior Editor

WOODCLIFF LAKE, N.J. — Timeplex, Inc. is expected to announce an array of new products next month, including an ISDN interface for its Link+ T-1 multiplexers and enhancements to its Time/View 2000 net management system, *Network World* has learned.

According to sources familiar with the announcements, the new Timeplex products will be unveiled at the Tele-Communications Association, Inc. Annual Conference in San Diego in late September and should be delivered within six months of their introduction.

Timeplex is also expected to release statements of direction regarding frame relay support for its family of Link+ multiplexers and expanded protocol support for its Time/LAN 100 routers.

(continued on page 8)

NETLINE

MICROSOFT UPGRADES SQL Server and takes control of the product's distribution and support. Page 2.

LONDON POWER FIRM plans to use Accumaster Integrator, SNMP to monitor LANs. Page 2.

NETWORK SUPPLIERS anxiously monitor the Middle East crisis. Page 2.

HP TO ENHANCE its minicomputer line to support popular third-party LANs. Page 6.

US SPRINT CHIEF ESREY looks to boost morale in face of financial and billing problems. Page 6.

U.S. PATENT OFFICE deals Olof Soderblom another blow. Page 6.

FEATURE

Bush's policy-making team one year later

By Alan Pearce
Special to Network World

The members of President Bush's communications policy-making team have a vision of the future in which the U.S. leads the world into the information age. Pursuing that vision seems to require that they take a tough stance on enforcement of regulatory rules.

Federal Communications Commission Chairman Alfred Sikes, for example, is fighting to reestablish the credibility of his agency by strictly enforcing the

rules and vigorously promoting competition.

In addition, Bush's "trust busters" at both the Department of Justice and the Federal Trade Commission (FTC) appear committed to enforcement of the Modified Final Judgment. And National Telecommunications and Information Administration (NTIA) Chief Janice Obuchowski has shown that the NTIA is capable of playing a prominent role in policy-setting.

(continued on page 31)

Microsoft puts full force behind latest SQL Server

Software company unveils enhanced version of DBMS, expanded sales and support programs.

By Susan Breidenbach
West Coast Bureau Chief

REDMOND, Wash. — Microsoft Corp. last week released an upgraded version of its OS/2 SQL Server and has taken distribution and support of the product firmly into its own hands with an expanded staff and a big push into the reseller channels.

SQL Server 1.1 is easier to administer and features smaller and faster client-side interface software, new pricing options and new application development tools. Microsoft said it hopes the new features — along with what it calls “tremendously” expanded availability and support — will

help boost sales of what to date has been a widely acclaimed but sparsely implemented product.

The first release of the SQL Server data base management system was hampered by a lack of front-end development tools and incompatibility with the most widely installed network operating system, Novell, Inc.’s NetWare. Exacerbating these problems was a falling-out between Microsoft and Ashton-Tate Corp., which had exclusive retail distribution rights to SQL Server until last January.

The exit of Ashton-Tate from center stage created a void that *(continued on page 48)*

U.K. firm to use new SNMP feature of AT&T Integrator

Unannounced tool will aid in LAN management.

By Paul Desmond
Senior Editor

LONDON — National Power PLC last week said it plans to become the first U.K. user of AT&T’s Accumaster Integrator and will use new Simple Network Management Protocol (SNMP) software for Integrator to monitor and control its DECnet and TCP/IP local-area networks.

AT&T has not yet announced SNMP support for its integrated net management system. Such a feature would be a radical departure for Integrator, which today supports solely Open Systems Interconnection-based protocols.

Ray Gianni, Accumaster sys-

tems product manager at AT&T, last week confirmed that AT&T is working to add SNMP support to the Integrator.

“We are looking at how to provide that SNMP support,” Gianni said, although he declined to say when such an enhancement would be announced. An AT&T spokesman said other Integrator users have also requested SNMP support.

SNMP is the net management protocol for Transmission Control Protocol/Internet Protocol networks.

National Power, which was formed earlier this year by the breakup of a state-run utility, is in *(continued on page 48)*

Middle East crisis could bring network sales slump

By Bob Brown
Senior Editor

BAGHDAD, Iraq — Industry observers are anxiously monitoring the Middle East crisis, fearing that network suppliers could be hard hit if the crisis pushes the U.S. into a recession.

Since Iraq invaded Kuwait on Aug. 2, oil prices have risen sharply, the stock market has been reeling and there is growing talk of rising interest rates — all of which has fueled concern that a recession is imminent.

Indications are that the conflict could drag on for several months. A U.S.-led blockade is tightening around Iraq and Kuwait, and Iraqi leader Saddam

Hussein shows no sign of backing down, observers said.

“If this situation goes on for a couple more months and we see crude oil prices move up [even higher], there is a real danger this could push the economy into a recession,” said Kevin Lindemer, an energy analyst at Cambridge Energy Research Associates, a Cambridge, Mass., private energy research company.

Analysts said that could translate into a slowdown in sales for network vendors, particularly those selling big-ticket items.

“I don’t think any vendors are recession-proof,” said Rick Kimball, a telecommunications ana- *(continued on page 8)*

Briefs

MCI, Telecom*USA get merger nod. MCI Communications Corp. and Telecom*USA, Inc. last week received final approval from state regulators for their \$1.25 billion merger.

The two carriers said they are now working to merge their networks, a process that will take about 18 months and require only minimal capital expenditures, according to an MCI spokesman.

MCI currently operates a 46,000-route-mile nationwide network comprising 17,000 fiber miles, 13,000 miles of digital microwave links and 16,000 miles of analog microwave links.

Telecom*USA operates two fiber systems: a 2,700-route-mile net serving six Southeastern states and another serving Iowa that spans 460 miles. MCI and Telecom*USA use Digital Switch Corp. network switches.

MCI and Telecom*USA will first link nets in several major cities and then move on to secondary cities. The carriers’ networks already link Atlanta, Greensboro, N.C., and Washington, D.C., the MCI spokesman said.

MCI and Telecom*USA both operate fiber links that run from Washington to Atlanta. This will enable MCI to offer diverse routing between the cities, the spokesman said. Telecom*USA currently leases circuits from AT&T, Williams Telecommunications Group, Inc. and other carriers. “We’ll try to get out of those lease arrangements as soon as [possible],” he added.

AT&T unveils int’l discount plan. AT&T last week unveiled a new promotion for its Switched Digital International (SDI) service, through which users that purchase an international private line between now and December can receive a \$200 credit against SDI usage.

AT&T calls the promotion International Guardian Plus. It applies to international satellite, fiber-optic or analog private lines to any country. Currently, AT&T supports SDI to Australia, France, Jamaica, Japan and the U.K.

Pioneering effort. Microsoft Corp. and Pioneer Software, Inc. last week released Q+E 2.5, a \$149 data base querying and editing tool that links Microsoft’s Excel spreadsheet and other Microsoft Windows 3.0 applications to SQL Server. Q+E us-

ers can extract information from SQL Server data bases and download it into those applications for analysis and display.

Window of opportunity. Lotus Development Corp. last week said the latest release of its Lotus Notes groupware package, Version 1.1, is compatible with Microsoft Corp.’s Microsoft Windows 3.0.

The new version takes advantage of Microsoft Windows 3.0’s enhanced memory management system and will be able to run concurrently with other applications.

Lotus Notes Version 1.1 will be shipped free of charge to all current users under the company’s maintenance plan. For more information, contact Lotus at (800) 327-6148.

Over there. France Cables et Radio, a subsidiary of France Telecom, last week announced the acquisition of an 80% interest in Cylix Communications Corp., a Memphis, Tenn.-based provider of value-added net services and very small aperture terminal networks.

Financial terms of the deal were not disclosed.

Cylix will be operated under its current management as an independent subsidiary of France Cables et Radio. The agreement is expected to give Cylix the financial backing needed to boost its service offerings in the U.S. and to expand overseas, Cylix executives said.

A COS for celebration. The Corporation for Open Systems International and *Business Week* will hold a banquet and awards presentation honoring innovations in open systems computing and communications.

The event, scheduled for Sept. 26 at the Willard Inter-Continental Hotel in Washington, D.C., will feature a celebrity roast of Robert Metcalfe, inventor of Ethernet, founder of 3Com Corp. and past chairman of COS’ board of directors.

Roasters will include IBM’s Ellen Hancock, William Krause of 3Com, author Douglas Adams, General Motors Corp.’s Mike Kaminski and space shuttle astronaut Bob Crippen.

Tickets for the event are priced at \$100. For more information, call (703) 883-2732.

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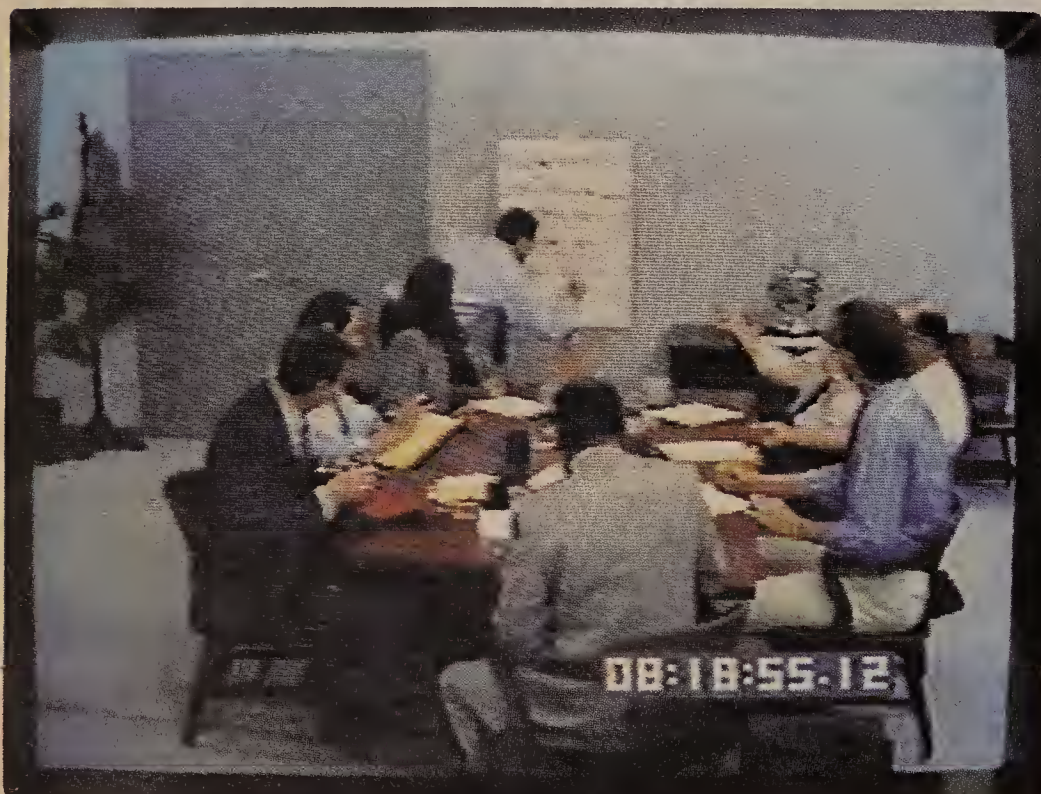
See The FAXNeT Form on Page 18



"My ultimate PC system? Well, for starters, it's got to be compatible with everything I've got already... so you can take a floppy from an old PC, pop it into a new one, and it will work."



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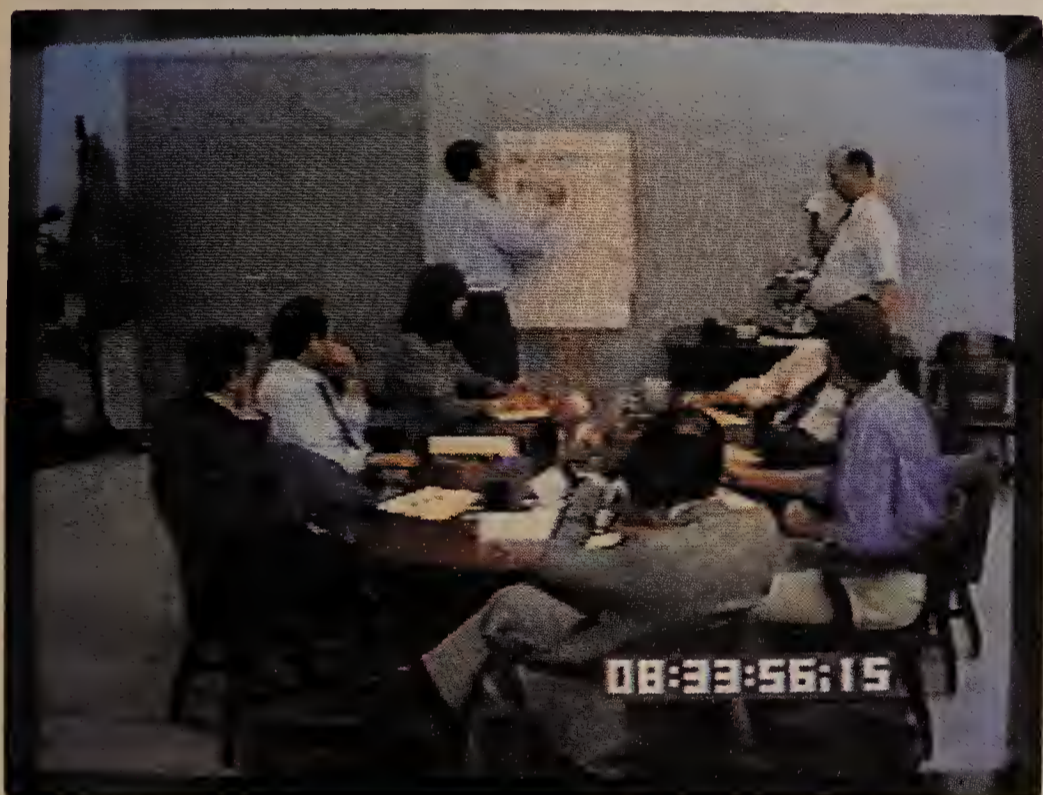
And they wanted all their software to have a single way of working, so training and support costs could be dramatically lower. Like Macintosh.



"A graphical interface is clearly important... users love 'em. But the architecture has to be designed to handle it or the performance compromise is unacceptable."



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"Macintosh? No kidding?"

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HP to pitch products that position minis as servers

Also will unveil new links to IBM environments.

By Jim Brown
Senior Editor

BOSTON — Hewlett-Packard Co. this week is expected to unveil products that will position its minicomputers as high-performance servers for popular local-area networks and discuss plans to integrate its HP 3000 line with IBM hosts more closely.

In a briefing here at the Interex HP Computer User's Conference, HP is expected to announce a version of Novell, Inc.'s NetWare network operating system that will run on HP 3000s under the MPE operating system.

The company also plans to outfit the HP 3000 with software that enables it to support the Named Pipes interprocess communications facility in Microsoft Corp.'s LAN Manager.

Together, the announcements will enable LAN workstation users to access HP 3000s as high-performance servers capable of handling such compute-intensive

tasks as engineering analysis or data base lookups.

The MPE version of NetWare is based on Novell's Portable NetWare, a version of NetWare 386 that can be fine-tuned to run under different operating systems. HP licensed Portable NetWare in May 1990. It said an early release would be available for selected customers by year end and a finished release would hit the market early next year.

Sam Schorr, director of software development in L.A. Gear, Inc.'s MIS department, said the product would help the athletic shoe and apparel supplier integrate its 25 NetWare LANs supporting 600 microcomputers into its seven HP 3000s.

"[With an MPE version of NetWare] we can start writing applications that run on the HP and go directly to the PCs without going through gateways and protocol converters," Schorr said.

HP's support for Named Pipes

complements the vendor's joint effort with 3Com Corp. to develop LAN Manager/Unix, which enables a variety of Unix hosts, including HP 9000s, to act as LAN servers.

For IBM environments, HP is expected to announce plans to provide software links that will enable HP 3000 users to extract data from IBM's mainframe-based DB2 data base management system.

The firm is also expected to add support for IBM's Systems Network Architecture Distribution Services (SNADS) to the HP 3000.

Analysts expect HP to detail plans to build a version of its MPE/XL operating system that can run applications developed using Portable Operating System Interface (POSIX) standards. Lastly, HP is expected to roll out transaction-processing monitor software for its HP 9000 minicomputers running under HP-UX, HP's version of Unix. This will enable the vendor to position the HP 9000 as a transaction processor for data base-intensive applications such as airline reservation systems, analysts said.

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Report faults regulators, vendors for telecom deficit

By Anita Taff
Washington Bureau Chief

WASHINGTON, D.C. — The Department of Commerce last week issued a report that lays much of the blame for the nation's worsening telecommunications trade imbalance squarely on the shoulders of U.S. network vendors and policymakers.

The report acknowledges that restrictive trade practices in other nations have contributed greatly to the growing U.S. trade deficit in telecommunications products and services. But it also faults U.S. vendors for underfunding research and development, as well as focusing on short-term profits rather than market share dominance, among other things. The study says the government must take steps to improve the competitiveness of U.S. suppliers.

The report was prepared by the Commerce Department's National Telecommunications and Information Administration (NTIA) and its International Trade Association (ITA) units in response to a request from Congress in 1988. It is intended to serve as a guide to help Congress and the industry improve the competitiveness of U.S. telecommunications companies in an increasingly global marketplace.

Since 1978, the U.S. has gone from a \$1.1 billion trade surplus in telecommunications products to a \$1.9 billion deficit in 1988,

the latest year for which figures are available.

The trade deficit began to worsen dramatically after 1984, when AT&T was broken up and the newly formed regional Bell holding companies began buying goods from vendors all over the world rather than relying solely on Western Electric, AT&T's manufacturing arm.

Between 1984 and the end of 1987, U.S. market share in some telecommunications product areas — particularly customer premises equipment and digital communications products — fell as much as 70%.

According to Janice Obuchowski, assistant secretary for communications and information at the NTIA, while the U.S. had "thrown open the windows" of the telecommunications market here to competition, other countries have had strong limits on sales of U.S. equipment.

"Overall, the U.S. telecommunications industry is like a championship tennis player who has had to play most of his international games on the downwind end of the court," Obuchowski said.

But the time has come for U.S. vendors to recognize that their own business practices have contributed to the industry's demise, according to Obuchowski and Michael Farren, under secretary of the ITA, at a press conference last week.

"The solution to the competitive problems must be found within the private sector itself," Farren said. "This [report], as much as anything else, is a call to the private sector firms to do some self-analysis and consider steps they must take to regain their standing in the current market."

Among the many problems that hamper the international competitiveness of U.S. vendors are inadequate investment in R&D, insufficient training and education of employees, and too much emphasis on short-term financial gains.

Obuchowski agreed, saying the "short-term orientation of companies is a leading cause of many of the problems."

She said a survey of U.S. and Japanese firms illustrated the difference in corporate philosophies. U.S. firms said their most important concern was return on investment, followed by share price increase. Japanese firms, on the other hand, rated market share as their most important concern, followed by return on investment and introduction of new products.

Although the Commerce Department report was critical of U.S. business strategies, it admits that government must step in to help resolve problems outside the industry's control. For example, the report recommends that the government provide tax incentives for investment, negotiate freer trade rules with other countries and modify antitrust laws to encourage more cooperative ventures among U.S. companies. □

US Sprint CEO tries to keep morale up after big loss

By Anita Taff
Washington Bureau Chief

KANSAS CITY, Mo. — In a letter sent to employees last week to boost morale, William Esrey, chairman and chief executive officer of US Sprint Communications Co., assured workers that the company's financial condition is improving and appealed for continued cooperation.

Esrey's letter, which was distributed to all US Sprint employees, was an attempt to shore up confidence in the face of mounting problems since the carrier last month announced it had lost \$42 million dollars in the second quarter. That loss marked the first time in a year the company failed to show a quarterly profit.

US Sprint's gloomy financial report sent its stock price reeling and forced the company to begin cost-cutting measures, which will include about 1,000 layoffs by the end of the year. Those layoffs, which are expected to take place at all levels of seniority, have caused morale to suffer since no one feels safe from the cuts, sources inside the firm said.

Adding to the financial woes, reports have surfaced that US Sprint is continuing to have bill-

ing problems. Customers have complained about delayed or inaccurate bills, and installation of a new billing system, the Invoice Processing System, has fallen behind schedule ("Users criticize US Sprint for continued billing problems," NW, Aug. 6).

In his letter, Esrey said the company had higher traffic levels in July than in any month this year. In addition, he said cost-cutting measures had slowed expenditures for last month.

Esrey told employees he is concerned about the "overreaction and negative publicity" resulting from US Sprint's problems. He said the company's costs for July had slowed and he believes the carrier is on firm footing.

"I feel July's results are encouraging and that the fundamentals of our company are sound," Esrey said in the letter.

He also downplayed reports about billing problems. "We have no fundamental billing problems," he said. "US Sprint is currently billing its customers on time and well within accepted industry standards."

Esrey acknowledged that the company is continuing to have bill-

Patent Office sticks by its Soderblom patent ruling

Invalidates key portions of token-passing claim.

By Laura DiDio
Senior Editor

WASHINGTON, D.C. — The U.S. Patent and Trademark Office recently reaffirmed its earlier decision to invalidate key portions of Olof Soderblom's 1984 token-ring patent, which could jeopardize his licenses with more than 50 vendors that pay him royalties.

In its July 24 decision made public nine days ago, the Patent Office ruled that the closed-loop token-passing scheme, which forms the basis for the IEEE 802.5 token-ring technology, was invented by AT&T Bell Laboratories engineers in the late 1960s and not by Soderblom.

Although the Patent Office disallowed the five points pertaining to closed-loop token-passing, the office let stand 29 other points made by Soderblom in the patent that do not relate directly to the IEEE 802.5 standard.

Soderblom said he will appeal the ruling in a written rebuttal to the Patent Office to reinstate the five claims.

"The reexamination process will continue on the five remaining claims," he said in a statement released last week. "I re-

main confident that we will obtain a similar confirmation of each of the five remaining claims after further consideration by the patent office."

Many vendors said privately that if the Patent Office's decision holds up through the appeals process, they will break their licensing agreements with Soderblom and pass on the cost savings to end users.

"If the decisions surrounding this patent continue to go against Soderblom, I'd say there's a very good chance we won't be paying him any more royalties after next year," said an executive at one token-ring manufacturer who requested anonymity.

The Patent Office's July 24 decision is the latest in a series of actions begun last March. At that time, Wayne Harding, an attorney with the Houston law firm of Arnold, White & Durkee, filed a request on behalf of an anonymous vendor to reexamine the validity of Soderblom's token-ring patent.

The Patent Office granted the request in April and handed down its initial ruling nullifying key portions of Soderblom's patent in April. □

(continued on page 49)

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Isn't it time you found something to love that you'll never outgrow?



TCA rollout set by Timeplex

continued from page 1

Timeplex executives interviewed last week, including President Dewaine Osman, declined to discuss product plans or upcoming statements of direction. The company is sensitive to pre-announcements of products, having encountered problems in the past with failing to meet delivery schedules for major new offerings.

The executives did, however, discuss the company's second-quarter financial performance, which they claim is the best in its 21-year history (see "Timeplex upswing fueled by long-awaited releases," this page).

One of the most important products expected to be announced is an Integrated Services Digital Network Primary Rate Interface (PRI) for Timeplex's line of Link+ multiplexers. This would better position Timeplex to serve users with hybrid nets based on public and private net services.

Among other things, PRI support would enable users to take advantage of ISDN bandwidth management features and utilize ISDN's Common Channel Signaling System 7 capabilities.

"It would be a smart move on Timeplex's part to introduce an ISDN interface because we've seen the emergence of hybrid networks as the dominant architecture on which multiplexers are going to reside," said Berge Ayvazian, a vice-president at The Yankee Group, a Boston-based

consultancy. "The functionality of carrier ISDN and virtual net offerings is going to increase. Timeplex's ability to maximize the role of the multiplexer in that environment is important."

Timeplex is also expected to announce that its Time/View 2000 Network Management System will run on a Sun Microsystems, Inc. SPARCstation Reduced Instruction Set Computer-based workstation, as well as unveil a Time/View 2000 interface to NetView.

Porting Time/View 2000 to the SPARCstation is expected to improve performance of the network management system.

An interface to NetView would enable Timeplex's Time/View 2000 Network Management System to pass alarms from Timeplex products to NetView for users that employ NetView as an umbrella net management system. Control of Timeplex products via NetView is not expected soon, however.

"All of the serious T-1 backbone players must have interfaces to the major global network management schemes of the 1990s," said Rick Malone, a principal at Vertical Systems Group, a consulting firm in Dedham, Mass. He declined to comment on Timeplex's product plans.

Timeplex has already established an interface to AT&T's Accumaster Integrator integrated net management system and would do well to establish links with MCI Communications Corp.'s Integrated Network Management System to encourage more MCI users to employ Time-

plex products, Ayvazian said.

Users of the Timepac X.25 packet switches can expect those products to be brought under the domain of the Time/View 2000 Network Management System.

Timeplex is also expected to introduce a channel bank, a type of T-1 interface already offered by rivals such as Newbridge Networks, Inc. Details on the channel bank announcement were not available, nor was pricing for any of the upcoming products.

Also in September, Timeplex is expected to outline its strategy for supporting frame relay and fast packet switching through its multiplexers. The company may provide an interface card that will enable the devices to support bandwidth-hungry applications such as LAN interconnection.

By incorporating these technologies into their switches, T-1 vendors hope to encourage users to send more local-area network and other so-called "bursty" data traffic over backbone nets, Malone said. "The industry will be compelled to support those applications using a fast-packet technology," he added.

Timeplex is also expected to discuss expanded protocol support, as well as higher packet handling speeds, for its Time/LAN 100 routers. The routers currently support Transmission Control Protocol/Internet Protocol, Fiber Distributed Data Interface and Ethernet protocols, and handle 6,000 packet/sec.

IBM and Digital Equipment Corp. protocols are likely to be supported, as well as Open Systems Interconnection. □

Crisis could bring slump

continued from page 2

lyst at Montgomery Securities, Inc. in San Francisco. "Lower end PC networking vendors will be less vulnerable than the wide-area network vendors or the guys selling connectivity products for mainframes and minis, which involve more capital-intensive purchasing decisions."

Rick Malone, a principal at Vertical Systems Group, a Dedham, Mass., consulting firm, said a softening in the economy has already put pressure on companies to cut spending levels.

"A worsening of the economy would only exacerbate problems for companies like [Network Equipment Technologies, Inc.] and other mux vendors that have already felt the effects of frozen capital expenditures."

Since the latest Middle East crisis began, "the administration has moved quickly to dampen expectations by lowering estimates for real GNP," said Bob Wilkes, a telecommunications analyst at Brown Brothers Harriman & Co., a New York investment firm. "If that means we're headed for a recession, corporate [network equipment and service] buyers

would be affected right away."

Brian Siegel, vice-president of the electronic services department at National Westminster Bank USA in Melville, N.Y., agreed. "In the financial industry, we're already seeing some pressure on spending," Siegel said. "But outside influences, like the events in the Middle East, could hurt the economy more."

For vendors, increased oil prices could also translate into higher operating costs, which could be passed on to customers.

Oil is needed to produce energy to run manufacturing plants and to produce plastics and other materials used in network equipment. Rising gasoline prices have already been responsible for hikes in transportation costs.

Most vendors agreed, however, that it is too early to tell what impact oil price hikes will have on their business.

"I think the whole Middle East issue is a concern for everybody in our industry and is something to keep an eye on," said Gerry Cregan, vice-president of operations at Netrix Corp. in Herndon, Va. "But I don't see any immediate impact on product pricing."

Users may start feeling the pinch of rising oil and transportation costs, however, as vendors

begin charging more for shipping products to users, said Bridget McNeil, field service manager for 3Com Corp.'s intercontinental group.

Siegel said he isn't too concerned about network equipment prices rising.

"I think the network industry is so competitive that the vendors aren't going to be able to quickly pass any increased costs onto customers," he said.

Some vendors said the telecommunications industry is not nearly as susceptible to hikes in oil prices as others, such as the airline industry.

"I don't think the telecommunications industry will be affected any more significantly than any other industry," said Edwin Spievack, president of the North American Telecommunications Association, an industry trade group for network equipment makers and distributors.

For some vendors, there may actually be a silver lining in a recession brought on by oil price increases, observers said.

Videoconferencing equipment and service vendors stand to benefit from hikes in fuel costs in that "users will be more inclined to make investments that help them reduce travel," Wilkes said. □

Timeplex upswing fueled by long-awaited releases

WOODCLIFF LAKE, N.J. — Timeplex, Inc. executives last week discussed what they claimed was a banner first half, explaining how the company prospered while many of its competitors struggled.

Timeplex's second quarter, ended June 30, was the best in the company's 21-year history, contributing to first-half revenue increases of 20% to 25% over last year, company executives said. (Timeplex does not report specific revenue or earnings information separately from its parent, Unisys Corp.)

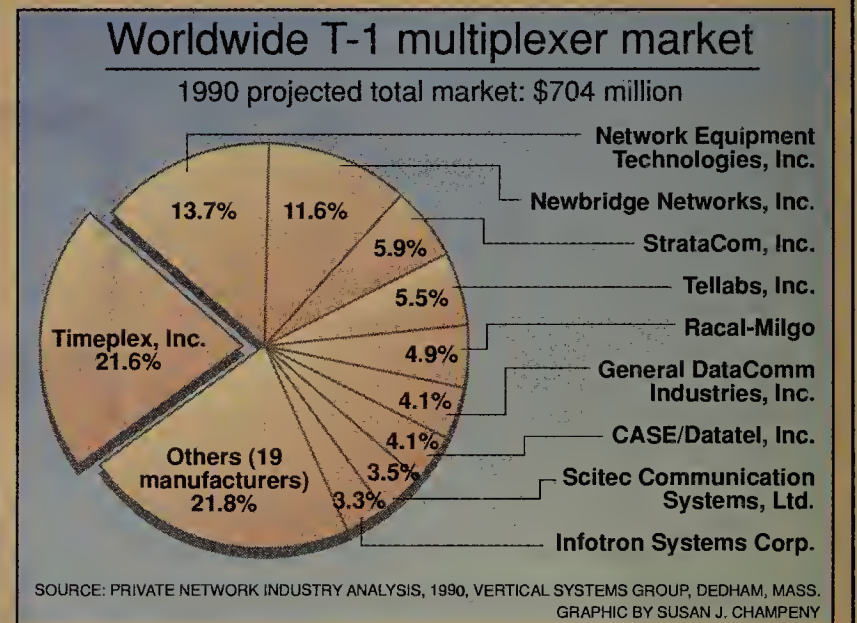
agreed, "The new management team finally started to develop some synergy with Unisys."

Unisys acquired Timeplex in January 1988.

Timeplex has also enjoyed expanding sales abroad, Osman said. About half of Timeplex's revenue comes from overseas sales, he said.

While the U.S. market for T-1 nets has been saturated to some extent, according to some observers, the international market is still hot.

"Timeplex is riding the international crest," said Rick



According to Dewaine Osman, president of Timeplex and the Communications and Networks Group at Unisys, several factors contributed to Timeplex's strong showing.

These included demand for the company's long-delayed Link/100 multiplexers and Time/View 2000 Network Management System, the development of a closer relationship between Timeplex and Unisys, and continued strong sales overseas, he said.

"We're doing well because we're back on track," Osman said. "It's no secret that Timeplex had pent-up demand over a couple of years for some products."

This year, Timeplex has been increasingly successful selling into existing Unisys accounts, Osman said. Changes have been made to better compensate Unisys and Timeplex salespeople for working more closely together, he said.

Last year, Osman added the Timeplex post to his existing post at Unisys. Having a role at both companies "gives me an advantage in making sure that what I want to get happening from a Timeplex point of view gets happening on the Unisys side," Osman said.

Berge Ayvazian, a vice-president at The Yankee Group, a market research firm in Boston,

Malone, a principal at Vertical Systems Group, a Dedham, Mass., technology management consulting firm. Malone credited Timeplex's experience and presence overseas with giving it an international edge.

Users said they've seen a difference in Timeplex both here and abroad during the past year.

"As I watched Timeplex for the last couple of years, the company appeared to be starting out behind other vendors, but Timeplex has made great strides by sticking to delivery schedules and providing good service," said Don O'Connor, director of global network at Fluor Daniel, Inc., a large Irvine, Calif.-based engineering and construction firm that is in the midst of building an international private net using Timeplex equipment.

"Reports of Timeplex's demise have been greatly exaggerated," agreed Steve Taylor, a telecommunications analyst at Distributed Networking Associates, a Greensboro, N.C.-based consulting firm. "Timeplex still has the broadest line of products in the industry and is the strongest competitor overseas. But the real proof of how sound Timeplex is will come when we see what they announce for products based on new technologies."

— Bob Brown

INDUSTRY UPDATE

VENDOR STRATEGIES, MARKET TRENDS AND FINANCIALS

Worth Noting

"Marketing abuses in 900 number services are of serious concern to legitimate businesses in the industry. Self-regulation through development of voluntary standards within [the Information Industry Association] is an important step for all business people and consumers."

Peter Brennan
Chairman
Information Industry Association
Voice Information Services
Division
Washington, D.C.

People & Positions

Terry Parker last week was named president of **GTE Corp.**'s newly formed Telecommunications Products and Services Group.

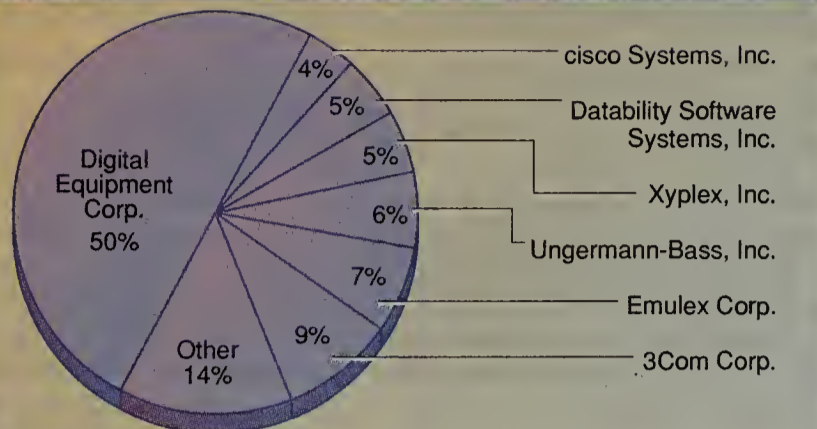
Parker has been president of the GTE Mobile Communications Division in Houston since 1988, and his promotion is considered to be an indication of how important cellular communications has become within the telecommunications industry.

The new group combines GTE's government systems, information services, mobile communications and satellite network units. The creation of the new unit will give **Charles Lee**, GTE's president and chief operating officer, more time to complete GTE's merger with Contel Corp.

Several of Contel's business units may fall under the direction of Parker, though those units have yet to be identified.

Paul Kozlowski, president and chief executive officer of Contel's cellular business, will replace Parker as president of GTE Mobile Communications after the merger. □

Snapshot of terminal server market



Total server ports shipped worldwide in 1989 = 2,058,749

GRAPHIC BY SUSAN J. CHAMPENY

SOURCE: INTERNATIONAL DATA CORP., FRAMINGHAM, MASS.

Vendor groups split over effects of RBHC price caps

Some fear FCC plan will depress competition.

By Ellen Messmer
Washington Correspondent

WASHINGTON, D.C. — Network vendors and their industry trade groups are divided over whether the FCC's proposed price cap plan for regional Bell holding companies will be a boon or a threat to equipment manufacturers.

At a recent public forum on the issue, the Computer and Communications Industry Association (CCIA), Siemens Communications Systems, Inc. and Integrated Network Corp. argued that manufacturers will benefit from price caps because the plan will give local carriers the incentive to modernize their networks in order to reduce costs.

But the Independent Data Communications Manufacturers Association (IDCMA) asserted that if the RBHCs were granted manufacturing privileges, they could use the rate-setting powers of price caps to drive customer premises equipment manufacturers out of the market.

The FCC wants to replace the Bell companies' current 12% rate-of-return regulation with a price cap plan on Jan. 1. However, the plan is meeting mounting opposition from Congress ("Congress warns FCC against rapid change," *NW*, Aug. 6).

If the plan is implemented as currently written, the RBHCs could increase or decrease prices for individual services by 5% within specified categories. However, aggregate prices for the service group cannot exceed or fall below limits set by a complex formula that is tied to inflation and other cost variables.

Ann LaFrance, a telecommunications attorney with Squire, Sanders & Dempsey, a law firm that represents IDCMA, said the price cap plan could give local

carriers the power to unfairly manipulate the market.

For example, LaFrance claims that the Bell companies could set digital data service (DDS) rates artificially high or low. She said the local carriers, for instance, could make it more attractive to purchase several 9.6K bit/sec lines instead of a single 56K bit/sec line capable of handling multiplexed data.

The effect would be to discourage sales of multiplexers, thereby unfairly depressing one segment of the equipment market. Such market manipulation could eventually result in some customer premises equipment manufacturers going out of business, LaFrance said. "CPE solutions could be booted out of the market," she said.

Also, if the RBHCs are permitted to manufacture equipment in the future, the ability to engage in price manipulation under the price cap plan could become a weapon in the equipment market, LaFrance said.

Sales boost

Despite such fears that price caps could damage the industry, other observers said they believe that the new form of regulation would boost sales.

Stephanie Biddle, vice-president of CCIA, which represents computer and network equipment vendors, said price caps would contribute to the goal of network modernization. Because the plan allows the RBHCs to retain profits generated by cost savings, they would be encouraged to invest in newer, more efficient technology, she said.

The CCIA position runs counter to that of many price cap opponents — including a number of user and consumer groups — (continued on page 10)

LAN leasing seen as viable user option

Short-term rentals, leases emerge as popular ways to reduce capital outlays, stay on leading edge.

By Bob Brown
Senior Editor

Leasing companies, which typically specialize in personal computer or large system leases, last week said a cottage industry is quickly forming to satisfy demand for short- and medium-term leases for leading-edge local-area networks.

Those companies claim that end users are turning to rental and lease arrangements in an attempt to stem capital spending and stay on the equipment market's leading edge, rather than making outright purchases, which lock users into products that could become obsolete.

"Our inventory reflects market demands, and currently, LANs are hot," said Walt Kosmowski, marketing manager for Electro Rent Corp., a leasing and rental company in Van Nuys, Calif.

Lessors interviewed by *Network World* said they are seeing demand for high-performance LAN servers and network interfaces for workstations, although demand for routers and bridges is starting to perk up, too.

Rentals typically last three to six months, while leases usually

carry one- to two-year terms and often come with the stipulation that a customer will either purchase the equipment or extend the lease by upgrading to other equipment.

Lessors even provide network operating system software, installation and, depending on the provider, technical support as well.

Sign of the times

Although many LAN analysts do not follow the leasing market, they said the time may be ripe for leasing LANs.

"With everybody downsizing and watching their budgets, it makes sense that leasing LANs will become popular," said George Newman, director of consulting for Technology Investment Strategies Corp., a Framingham, Mass.-based market research firm.

Under a lease arrangement, users spread the expense of LAN equipment over time. This is in contrast to purchases, which are accounted for as capital expenditures reported in a lump sum.

(continued on page 10)

INDUSTRY BRIEFS

Retix, an Open Systems Interconnection software house, last week said it has developed a high-speed remote bridge technology in tandem with **SynOptics Communications, Inc.** that will be bundled into SynOptics' LattisNet System 3000 intelligent wiring concentrator. Called the LattisNet Model 3356 Remote Bridge, it is a wide-area product resulting from the two companies' March 1989 technology sharing agreement. SynOptics has the exclusive marketing rights for the bridge product designed by Retix. The bridge allows users to connect Ethernet local-area networks over a variety of high-speed links.

NCR Corp. last week announced a cooperative marketing agreement with **Pacer Software, Inc.** under which it will market a version of Pacer's Pacerlink software developed for the NCR Tower line of supermicrocomputers. Pacerlink will enable **Apple Computer, Inc.** Macintosh users to access NCR Tower systems running the Unix System V operating system. The software will provide terminal emulation, file transfer, print spooling and virtual disk services for computers connected to NCR computers via an Ethernet or asynchronous link.

Intel Corp. and **PictureTel Corp.** last week announced a five-year joint development agreement for interactive video processing technology. The two companies will work to combine digital video compression algorithm and processor architecture technologies to create products that simultaneously permit desktop videoconferencing and multimedia applications on personal computers. □

Vendor groups split over price cap effects

continued from page 9

who argue that the local exchange carriers will decrease network upgrades in order to cut costs.

Siemens Communications Systems and Integrated Network, both suppliers of network products to the local exchange carriers, said price caps will have a positive impact on their business.

William Tucker, manager of business planning at Siemens, noted that his company's upper management had questioned how price caps would change the spending and procurement policies of the Bells. He said his company's analysis determined that price caps would spur the RBHCs to re-

duce the costs of operating the network.

"The expense is in operation and maintenance of the network," Tucker said.

He predicted that the RBHCs would step up their investments in operational, administrative and maintenance modernization to hold down costs under price cap regulation.

Yo-Sung Cho, president and chief executive officer of Integrated Network, said the advent of price caps for the RBHCs would lead to better spending practices by the companies.

Currently, he said, the RBHCs tend to make large capital investments in short bursts, and they have little incentive to change the system. Price caps would bring better planning and closer cooperation with vendors, he predicted. **■**

LAN leasing seen as viable user option

continued from page 9

Kevin O'Neill, vice-president of networking research and consulting at Business Research Group, a Newton, Mass.-based market research firm, said leasing could allow users to upgrade to newer equipment without scrapping a prior capital investment.

"A few years ago, [Intel Corp. 80286-based] LANs were the big thing, but now everyone wants 386 LANs," O'Neill said. "The idea of investing in something that won't last more than a couple of years could be a compelling reason to consider leasing."

LAN leases and rentals probably won't ever account for a major portion of les-

sors' revenues, given that many users would be just as well off buying LAN products due to their relatively low cost, according to a spokesman for Comdisco, Inc., the world's largest independent lessor of computer and communications products.

Currently, the number of LAN leases and rentals is minuscule compared with the number of LAN sales, leasing and rental firms said. But LAN leasing activity is on the rise.

"It's a growing part of our business," said Crista Martyr, president of Data Preference, Inc., a \$60 million firm based in San Mateo, Calif., that specializes in renting and leasing personal computers and peripherals. "But don't tell that to Novell."

Novell discontinued its leasing program in the first half of 1989 because there was "not enough demand to justify the program," according to a Novell spokeswoman.

Likewise, 3Com Corp. doesn't offer leasing arrangements, while larger suppliers of equipment, such as Digital Equipment Corp., do offer lease terms.

Third-party business

Third-party lessors said the bulk of demand for leased LANs is for LAN servers and adapter cards from Novell, 3Com and other leading vendors.

"We look to stay with big-name suppliers because it is much easier to sell their equipment afterward as used equipment," said Electro Rent's Kosmowski. For example, once a server is rented for a period of 18 to 24 months, his company sells it on the used equipment market at a fraction of its original cost, he said.

Many LAN rentals are for small departmental nets, but some lessors, such as Data Preference, have rented LANs with as many as 10 servers and 100 personal computers, Martyr said.

Electro Rent, like Data Preference, recently signed on as a partner under DEC's new Digital Authorized Rental program to rent a variety of DEC equipment, including LAN gear. Electro Rent makes other vendors' LAN offerings available for lease or rent, including 3Com and IBM LAN offerings.

David Murphy, product sales manager for Electro Rent, said his company has been leasing and renting LAN equipment to users for about a year and is encouraged by the response.

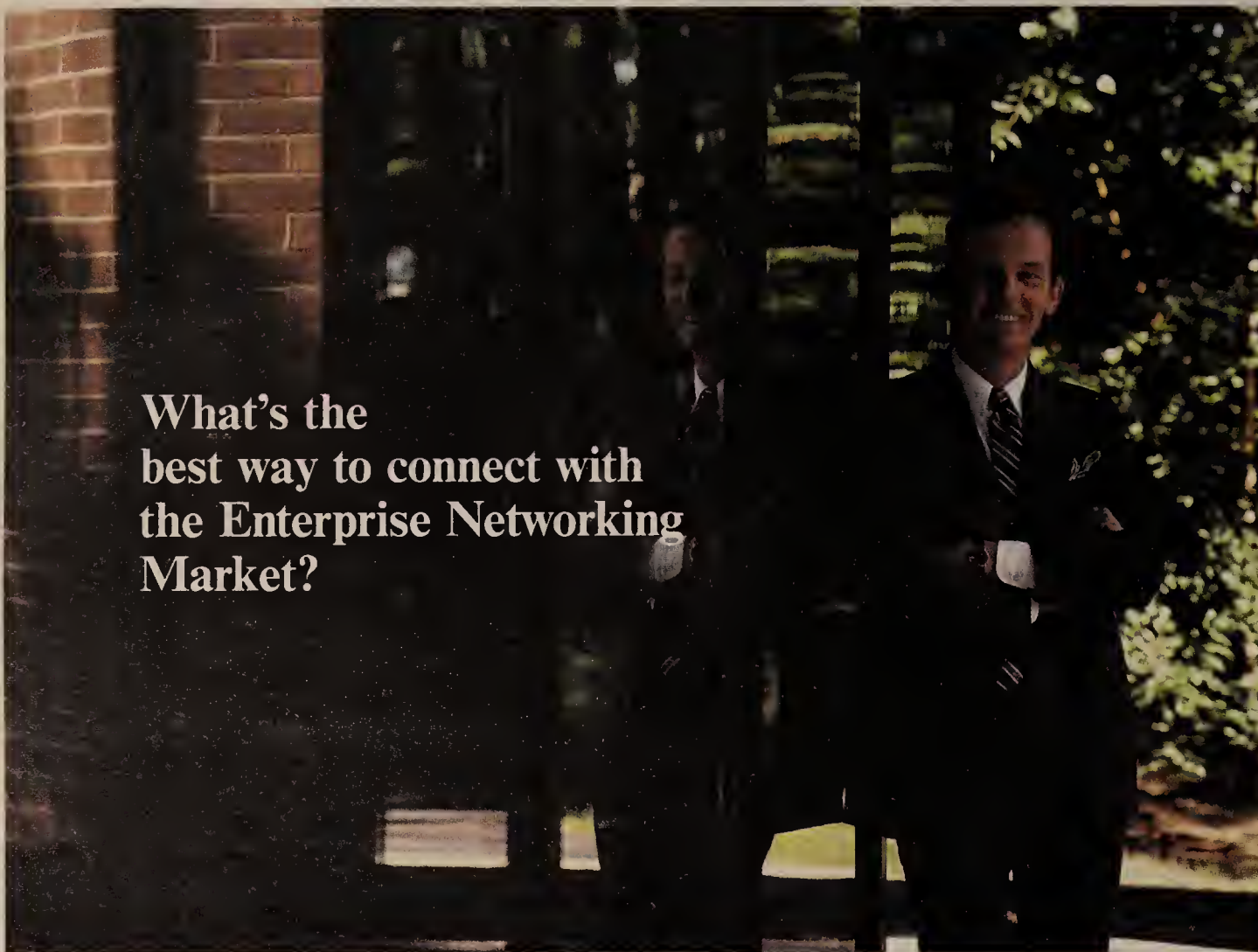
According to lessors, customers tend to lease or rent LANs for many of the same reasons they would rent other types of equipment.

Martyr said some users lease or rent LANs for financial reasons, while others do so for the flexibility of being able to upgrade equipment when a higher performance model becomes available.

One large user, who asked not to be named, said his company leases "everything from mainframes to minis to LANs" for the purpose of spreading out the cost of the equipment over an extended period of time.

According to Martyr, users also rent or lease LANs for short-term projects. She said Data Preference once rented a LAN for 4½ months to an aerospace company that was conducting a development project for which it needed to link 35 personal computers for a group of engineers. **■**

Gary Beach, Publisher, *Network World*



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Worth Noting

Thirteen rate cases in 10 states — representing \$1.09 billion in carrier-proposed rate increases — have yet to be resolved according to a recent FCC report. All but one of the cases were filed in the first half of 1990.

Carrier Watch

Metropolitan Fiber Systems, Inc. (MFS) of Oakbrook Terrace, Ill., last week said its subsidiaries in Los Angeles and San Francisco are providing Union Bank of San Francisco with alternative access service for a videoconferencing application.

MFS of San Francisco will provide a direct fiber link from the bank's headquarters to the nearest MCI point of presence (POP), while MFS of Los Angeles will link a bank site in the city to the carrier's POP.

"MFS proved to be not only less expensive than Pacific Bell, but also the only carrier that could offer the high-speed [384K bit/sec] circuits necessary for quality video transmission," according to Noel Harris, vice-president of telecommunications and data base administration for Union Bank.

The bank said it will conduct a 90-day pilot test of the service.

Videoconferencing will be used for general staff meetings among bank employees at both locations, explained Harris.

"Videoconferencing will reduce the bank's travel expenditures while still allowing the bank's executives to meet face-to-face," according to Harris.

MFS of Los Angeles operates a 966-mile fiber network, which came on-line in November 1989.

The San Francisco company's network, which was cut over in August 1989, is 916 ft.

(continued on page 12)

Used telecom equipment sales on the rise



▲ Millions of dollars in sales
Current and projected figures include sales of PBXs, individual switch components, telephones and voice mail systems.

GRAPHIC BY SUSAN SLATER

SOURCE: EASTERN RESEARCH CORP., PARSIPPANY, N.J.

Congress mulls panel to monitor RBHC net quality

Fears price caps could lead to service decline.

By Anita Taff
Washington Bureau Chief

WASHINGTON, D.C. — Responding to growing concern that implementing price cap regulation for the RBHCs could lead to lower service quality, Rep. John Bryant (D-Texas) has called for the establishment of a panel that would set network quality standards and monitor carrier performance.

Bryant recently introduced a bill that would require the Federal Communications Commission to establish a board comprising state and federal regulators to develop service quality standards. These standards would be designed to ensure that the regional Bell holding companies maintain and enhance their nets, he said.

For switched and special access services, the joint board would set quality standards for such things as call completion time, noise levels, network facilities, prompt service delivery and operator services.

Bryant said he wants to set up a mechanism to prevent service problems if the FCC proceeds in implementing price caps.

▲▲▲

Local carriers under price cap regulation would be required to submit quarterly service reports to the FCC and state regulatory agencies demonstrating their compliance with the standards. The bill also suggests that regula-

tors make audits of carrier compliance with the standards.

Bryant said he wants to set up a mechanism to prevent service problems from arising if the FCC proceeds in implementing price cap regulation.

“With [price caps], the carrier has the incentive to skimp on quality because it can retain the money from cost savings.”

▲▲▲

“With [price caps], the carrier has the incentive to skimp on quality because it can retain all or part of the money resulting from cost savings,” he said. “This means the phone company could realize short-term profits by delaying maintenance or investments today at the expense of tomorrow’s ratepayers.”

Additionally, Bryant said he fears service quality could slip because the RBHCs are diverting resources to new business areas. “I believe the pressure on [RBHC] management to dedicate its most experienced and talented personnel to these new endeavors further threatens the continued quality of regulated services,” he added.

It is particularly important for regulators to prevent quality erosion, Bryant said, because it can take a long time for service problems to be recognized and remedied. He said the RBHCs would be likely to let quality slip for the noncompetitive services. □

Bausch & Lomb gets service edge via ANI

Contact Lens Division uses an ISDN application to trim call processing time, enable callbacks.

By Bob Wallace
Senior Editor

ROCHESTER, N.Y. — Bausch & Lomb, Inc. is using ISDN’s automatic number identification (ANI) feature to reduce call processing time and improve customer service.

Bausch & Lomb’s Contact Lens Division began using the ANI feature of the Integrated Services Digital Network Primary Rate Interface (PRI) in December 1989 and credits that move with shaving four seconds off the average time needed to process each incoming call at its 80-agent telemarketing center here.

Janice Glerum, customer service director for the division, said, “We’re able to handle more calls with three or four fewer agents than we needed before.”

In addition, the company’s customer service application captures the telephone number of customers who hang up before reaching an agent, enabling agents to return calls after peak calling periods.

“The customers are generally impressed with this new wrinkle in customer service,” Glerum said. “They love the idea of our agents calling them to take their orders or to answer questions.”

When optometrists, eye care centers and other customers call Bausch & Lomb’s 800 number to order products or discuss billing, their calls are passed from an AT&T 4ESS central office switch over one of three AT&T-provided PRI links to a Definity Generic 1 private branch exchange configured as an automatic call distributor (ACD). Bausch & Lomb receives ANI with about 85% of calls sent over the PRI links, Glerum said.

The ACD passes ANI data over an X.25 link to an AT&T 3B2 minicomputer running AT&T’s ISDN Gateway, software that supports one-way communications between the Definity and a computer. The ISDN Gateway software reformats the information for a customer service applica-

(continued on page 12)

WASHINGTON UPDATE

BY ANITA TAFF

ICA says RBHCs are undermining price caps.

The International Communications Association (ICA) complained to the Federal Communications Commission’s Common Carrier Bureau Chief Richard Firestone last week that the regional Bell holding companies and trade associations representing them are trying to undermine the price cap proceeding. The group said that since March 28, more than 125 filings have been made on price caps, the majority of which have come from telephone company representatives.

Many of these submissions contain detailed statistical and economic arguments about components of the price cap formula for local carriers. The information was submitted through a process known as ex parte filing.

Unlike formal filings in a proceeding, groups are not required to supply all interested parties with a copy of the ex parte submission. ICA complained that telephone companies are filing so many ex parte comments that it is difficult for ICA and others to keep track of the submissions and respond to them.

“ICA wishes to emphasize its continuing concern with the [RBHCs] tactic of filing ex parte submissions on price cap issues on an almost daily basis,” said Brian Moir, counsel for the ICA, in the letter last week. “The submission of multiple ex parte filings is harming public confidence in the commission’s processes because most parties to this proceeding are not able to comment on the material contained in these submissions.”

Moir complained that by filing paper after paper of economic and statistical information, the telephone companies are creating “a constantly moving target” on how the price cap plan should be formulated.

(continued on page 12)

Bausch & Lomb gets service edge

continued from page 11

tion running on Bausch & Lomb's Tandem Computers, Inc. minicomputer.

The ISDN Gateway formats the data into three types of messages: an arrival record, a connection record and a disconnection record. The arrival record contains the ANI, the trunk on which the call is arriving and the dialed number identification service code, which is the last four digits of the 800 number used by the caller.

The ISDN Gateway sends the arrival record to the minicomputer along with a connection record telling it to which agent the call is being transferred. The processor matches the ANI to a customer profile and transmits the file to the agent's terminal.

Bausch & Lomb's MIS department spent about 80 hours restructuring the data base on the Tandem minicomputer to search for files based on the customer's telephone number instead of the

account number.

Callers in the ACD queue who have not reached an agent after one minute are given the option of leaving either a detailed message or their order on Bausch & Lomb's AT&T Audix voice processing system.

When a caller hangs up before reaching an agent or Audix, the minicomputer receives a disconnection message containing the calling party's number.

Bausch & Lomb supervisors monitor this information to determine whether customers call back later to place orders. If no order is listed, a supervisor ships the screen full of data to a Bausch & Lomb agent for a callback.

Other companies, including Union Pacific Railroad, are using ANI to perform callbacks and finding customers very receptive to the idea. The railroad's agents perform about 50 callbacks a day ("Union Pacific employs ANI to lay claim to rail market," *NW*, Jan. 8). The approach is more cost-effective than adding agents to eliminate call queuing, Union Pacific said. **□**

Aggregators, resellers to form own interest group

National association will offer representation in regulatory affairs, forum for sharing information.

By Bob Wallace
Senior Editor

BELLEVUE, Wash. — A long-distance service aggregator based here is forming a national association that will, among other things, provide aggregators, rebillers and resellers with representation in regulatory matters.

Dick Wilson, president and chief executive officer for Feek's Telecommunications, Inc. here, said the group would serve as a forum for the discussion of industry developments and as a means for aggregators to exchange information.

United they stand

"We need the strength and power that can be attained by bringing aggregators, rebillers

and resellers together in one organization," Wilson said. "We need a national voice, which is something we don't have now."

The as yet unnamed group will be open to all aggregators, rebillers and resellers, Wilson said. More than 100 of these companies have expressed interest in joining the planned national association, he added.

Aggregators are noncarrier companies that act as intermediaries between carriers and groups of users that want to pool their long-distance traffic to achieve larger discounts. Rebillers and resellers buy carrier services in bulk and resell them to users.

Daniel Briere, president of TeleChoice, Inc., a consultancy in Manchester, Conn., said the top

40 national aggregators buy almost \$1.6 billion in carrier services annually, accounting for more than 3% of the \$50 billion long-distance services market.

Service aggregators first started popping up in 1988 after AT&T announced its Multi-Location Calling Plan (MLCP) and its Revenue Volume Pricing Plan (RVPP). MLCP offers discounts off combined usage of AT&T Megacom, ProWATS and WATS services while RVPP covers the full range of AT&T 800 services.

Recent limitations

AT&T, MCI Communications Corp. and US Sprint Communications Co. have made life difficult lately for aggregators, rebillers and resellers by altering tariffs to increase aggregators' responsibilities while limiting the way they market carrier services, Briere said.

For more information, contact Wilson of Feek's Telecommunications at (206) 641-5240, or Ronald Sherman of Communications International, Inc. at (617) 239-8021. **□**

Carrier Watch

continued from page 11

ber miles in length.

In a separate announcement, MFS said its MFS of New York subsidiary began construction of an all-fiber network serving users in lower Manhattan and said it will turn up service for customers in the Wall Street area by the end of September.

The MFS fiber network will serve government and business users in 80 buildings south of Canal Street. MFS already operates all-fiber nets in nine cities and said it plans to build another in Dallas later this year.

Illinois Bell Telephone Co., an Ameritech subsidiary,

last week began offering customers a single-line Basic Rate Interface Integrated Services Digital Network service that is not provided through Centrex service.

Standard service features include call forwarding, three-way calling, speed calling and call hold.

Pricing starts at \$22.66 per month for an ISDN line to simultaneously support voice and data transmission. An installation fee of \$94.50 would apply. The charge for using the line for videoconferencing would be \$35.66 per month.

Ameritech said its local exchange carriers will file similar tariffs for Indiana, Michigan, Ohio and Wisconsin in the first quarter of 1991. **□**

Washington Update

continued from page 11

ICA asked the FCC to open a formal comment period if it believes additional information is needed to fine-tune price cap regulation, rather than allowing the telephone companies to submit data on an ad hoc basis.

The FCC is scheduled to implement price cap regulation for the local carriers on Jan. 1. However, the plan remains controversial, and groups such as ICA say that unless economic assumptions used in the price cap formula are modified, consumers could pay \$5 billion more over the next four years for service than they would under the current rate-of-return system. Price cap regulation limits the rates carriers can charge for services rather than regulating profits, as is currently done.

FCC upholds T-1, T-3 tariff process. The Federal

Communications Commission last week reconfirmed an earlier finding that the regional Bell holding companies must offer T-1 and T-3 access services through tariffs and not through individual contracts with customers.

The FCC had allowed the local carriers to charge individual rates for the high-capacity access services after divestiture because the offerings were so new and there was too little demand for the carriers to derive generalized rates. However, the practice of charging contract rates has gone on well beyond the time the FCC intended, the commission said.

The FCC also reaffirmed that the RBHCs cannot charge customers any kind of penalty or termination fee to get out of their current contracts and move to tariffed rates. **□**

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DATA COMMUNICATIONS

PRODUCTS, SERVICES, ARCHITECTURES, STANDARDS AND NETWORK MANAGEMENT

Worth Noting

“We’re at a point with frame relay technology where all the T-1 multiplexer vendors are going to have to announce what they are going to be doing with it.”

Steve Taylor

Principal

Distributed Networking Associates
Greensboro, N.C.

Data Packets

Newport Systems Solutions, Inc. last week announced an enhanced version of its LAN²LAN router that will support its proprietary data compression algorithm, which can compress data at a 4-to-1 ratio.

The LAN²LAN Compression Router links remote Novell, Inc. NetWare local-area networks. The product can achieve an effective throughput rate of 38.4K bit/sec over a 9.6K bit/sec circuit and 512K bit/sec on a 128K bit/sec circuit.

The new router, which costs \$4,195, includes a microcomputer attached to the NetWare LAN, routing software and a two-port interface board that links the router to wide-area network circuits operating at up to 128K bit/sec. Users of existing LAN²LAN routers can upgrade by purchasing a new interface board and software for \$1,795.

Avanti Communications Corp. recently announced the Open Network Server (ONS) 400, a data service unit/channel service unit (DSU/CSU) with an integral four-port multiplexer.

Each of ONS 400's four ports can accept data rates ranging from 8K to 1.536M bit/sec. Users can store as many as four port configurations on the device and switch between-ports using the unit's five front-panel keys or an attached ASCII terminal.

Available now, pricing for the ONS 400 starts at about \$2,800. ■

MasterCard opts for T-1 to access packet-switched net

By Jim Brown
Senior Editor

NEW YORK — MasterCard International, Inc. is reducing the number of low-speed circuits supported by packet switches in its Banknet credit authorization network by using T-1 multiplexers collocated in AT&T central offices to combine data from individual member banks onto a fiber-optic T-1 circuit.

In addition to freeing up ports on Banknet packet switches, the move enables MasterCard to replace unreliable copper cables used with low-speed circuits with more reliable fiber-optic facilities.

It also lowers the cost of linking member banks to Banknet by 15% to 20%, and provides enough extra capacity to support either new members or increased traffic from existing members, said Philip Verdi, executive vice-president for electronic services.

“We get additional capacity for an equal or lower cost, and we have a more reliable net than we had in the past,” Verdi said.

Under a Tariff 12 plan signed with AT&T last year, MasterCard is collocating T-1 multiplexers in AT&T central offices to support

Banknet, a packet-switched net.

Those multiplexers receive data from Member Interface Processors, which are typically IBM Series/1 minicomputers located at member sites. Members use these minicomputers to packetize credit authorization requests they receive from terminals in merchant locations.

Each Member Interface Processor is linked via a leased line operating at up to 56K bit/sec to the AT&T central office-based multiplexer, which consolidates them onto a T-1 link to a MasterCard X.25 packet switch at a different location. Previously, each member bank was connected to a Banknet packet-switching node via a separate leased line.

MasterCard recently cut over a T-1 link that feeds data to its Banknet packet switch in Lake Success, N.Y., and is about to cut over another that will route data to a Banknet packet switch in San Francisco. T-1 links to two of the four remaining Banknet nodes in the U.S. are already in operation.

Swapping out low-speed leased lines covered under the Tariff 12 plan for T-1s will not affect service discounts obtained under Tariff 12, Verdi said. ■

Comdisco links its disaster recovery net to carriers

By Jim Brown
Senior Editor

ROSEMONT, Ill. — Comdisco Disaster Recovery Services, Inc. (CDRS) recently finished building T-1 and T-3 links to 22 different carriers as part of a wide-ranging disaster recovery project the firm embarked on last year.

The links to various carriers will enable CDRS customers to redirect incoming calls from their public net services onto the vendor's own CDRS Net private network in the event of an outage at a customer's site.

Once diverted onto CDRS Net, calls can be directed to Business Recovery Facilities (BRF), staffed temporarily by user personnel who would handle caller requests and process incoming orders. Outgoing calls can also be placed from the recovery sites.

CDRS began building CDRS Net last fall. With the completion of Phase II, all existing disaster recovery data centers, dubbed Computer Recovery Facilities (CRF), and smaller BRFs can support T-1 or T-3 circuits that provide access to voice and data ser-

vices offered by the carriers.

CDRS also recently opened a new BRF near Baltimore in Sparrows Point, Md., and added a BRF to its CRF in Bridgeport, N.J.

CDRS Net supports the disaster recovery firm's strategy of maintaining a few large CRFs that can be accessed from a growing number of smaller BRFs (“Disaster recovery company links backup sites into net,” *NW*, Jan. 29).

In this strategy, CDRS equips CRFs with minicomputers and mainframes, associated peripherals and communications controllers made by a mix of vendors.

Each BRF is also equipped with a group of workstations and telephones that enable businesses to shift such operations as telemarketing and order entry from a building knocked out by a disaster to a BRF.

Those workstations can be linked via CDRS Net to a host processor in a CRF, while the telephones have access via CDRS Net to carriers' voice services.

The final phase of the CDRS Net project is expected to be completed by next summer. ■

BIMCOM builds global DECnet



BIMCOM, Ltd.'s DECnet will support links with maritime companies worldwide. Initially, the net will consist of four DECnet Level 2 routers and four Level 1 routers, which have more limited routing ability.

GRAPHIC BY SUSAN J. CHAMPNEY

SOURCE: BIMCOM, LONDON

Maritime firms plan shared global DECnet

BIMCOM net will slash cost of messaging among shippers, trading partners and port authorities.

By Paul Desmond
Senior Editor

LONDON — The Baltic and International Maritime Council (BIMCO) is building a global DECnet network that will support communications among 3,000 maritime companies located in 105 countries.

The net will provide a shared backbone that BIMCO members can use to drastically cut communications costs as compared with public or private data communications networks.

BIMCO's network will support X.400-based electronic mail and telex communications, enabling members to exchange shipment data with trading partners, as well as with port and customs authorities around the globe.

BIMCO established a new company, BIMCOM, Ltd., to build the network, which will also be called BIMCOM. BIMCO members buy shares to become part owners of BIMCOM, then pay only a fixed cost for each message transmitted, regardless of distance.

BIMCOM is being built under a three-year contract with Digital Equipment Corp., which is the prime contractor for the core network hardware, and Science Applications International Corp. (SAIC), which serves as technical manager and systems integrator, according to Steve Stratton, SAIC technical manager.

Currently, the test network consists of eight DECnet Phase IV nodes, four of which are wide-area Level 2 DECnet routers capable of routing data from one DECnet area to another. The others are DECnet Level 1 routers that

route data only within their own DECnet area. That configuration is going through its final tests before an expected cutover to production mode in September, Stratton said.

The net is expected to grow at the rate of six to eight nodes a year in order to bring network access points closer to more BIMCO members, which link their own computers into any of the eight nodes via public data nets, dial-up facilities or leased lines.

The net consists of a mix of 64K, 56K and 16.8K bit/sec terrestrial and satellite links. For redundancy, each of the eight nodes is supported by two leased circuits plus a connection to an X.25 public data network as a fail-safe backup, Stratton said.

Users access BIMCOM via either a telex machine or a computer that supports X.400.

Stratton said next year BIMCOM will support messages to and from facsimile machines.

BIMCOM will provide a cost-effective means of communicating with trading partners compared to existing methods, Stratton said. Today, according to BIMCOM, Ltd., it costs \$8.81 to send a 1,000-character telex message from Denmark to Hong Kong. With BIMCOM, the same message will cost just 60 cents.

Plus, BIMCOM will offer a suite of services to its subscribers, such as a virtual dialogue service that will let multiple maritime companies negotiate a contract in real time and a conferencing service to let subgroups within BIMCOM exchange information on a regular basis. ■



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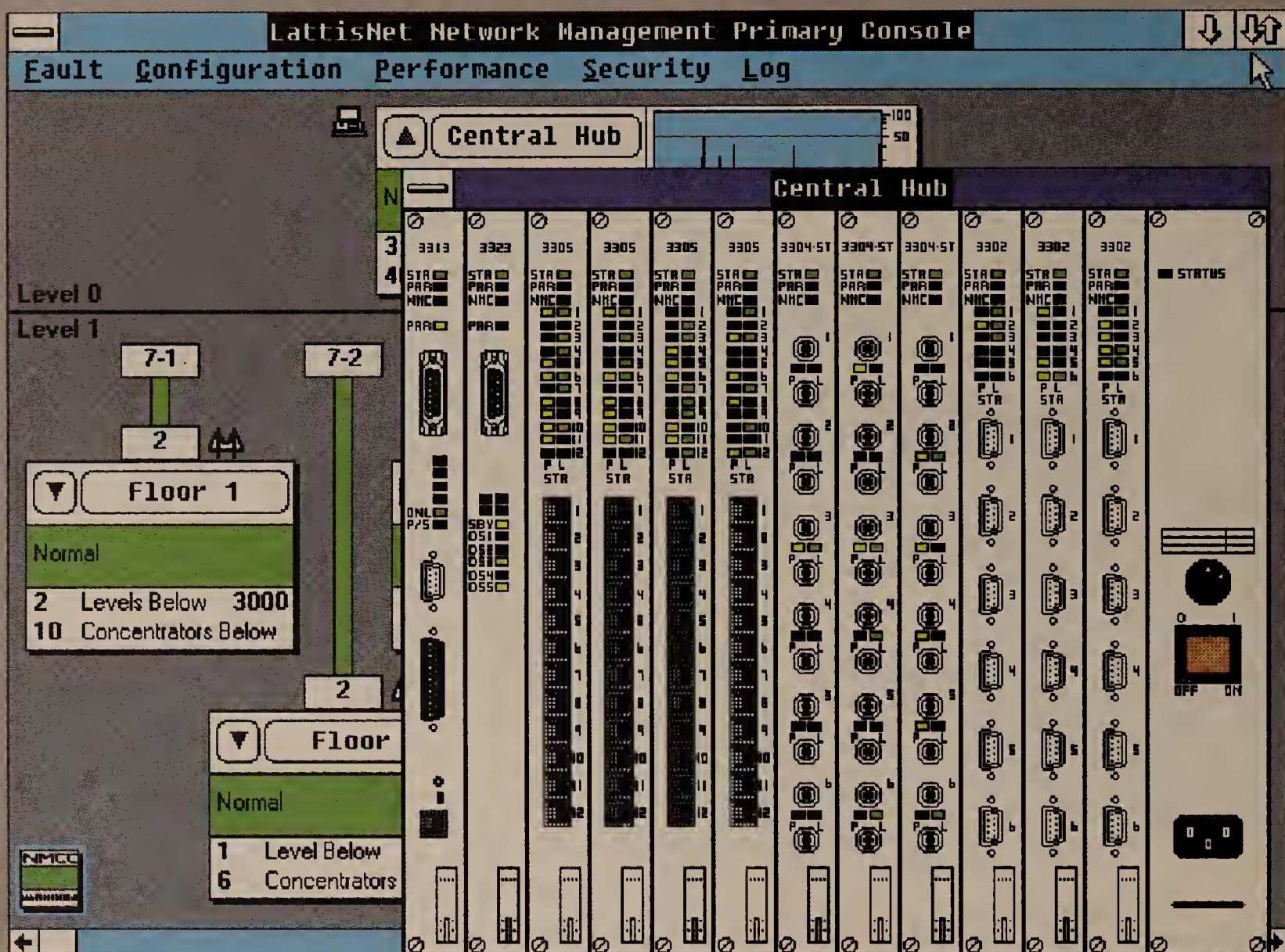
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tions. Problem segments and nodes can be partitioned from the network to avoid catastrophic failures and maintain high service levels.

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LOCAL NETWORKING

PC AND TERMINAL-TO-HOST LANS, GATEWAYS AND MICRO COMMUNICATIONS PRODUCTS

Worth Noting

“My mission is not to kill some of the claims in Olof Soderblom’s token-passing patent; it’s to kill all of the claims.”

Wayne Harding
Attorney

Arnold, White and Durkee
Houston

After filing a reexamination request on the Soderblom patent with the U.S. Patent Office on behalf of an anonymous vendor.

Netnotes

3Com Corp. recently added to its EtherLink line of Ethernet adapters with a 16-bit board designed for network file servers and high-performance workstations.

The EtherLink 16 includes drivers based on the 3Com/Microsoft Corp. Network Driver Interface Specification for nets running 3+Open or other versions of LAN Manager, as well as drivers for Novell, Inc.’s NetWare.

According to 3Com, LanQuest Group, an independent testing laboratory in Santa Clara, Calif., used Novell’s Perform3 benchmark test to compare the EtherLink 16 to some competing 16-bit Ethernet boards. LanQuest found that EtherLink 16 outperformed Western Digital Corp.’s EtherCard Plus 16 by 6% to 11% and beat the Anthem NE-2000 (formerly from Novell) by 30% to 49%.

The EtherLink 16 plugs into IBM Personal Computer XT’s and AT’s and operates in machines based on the Extended Industry Standard Architecture bus specification.

The card is available in single quantities for \$445. A group of five costs \$1,975.

Hewlett-Packard Co. recently announced its HP LAN Operations program, a new support service for users’ multivendor local-area networks.

Under an HP LAN Operations contract, HP will complement a user’s in-house expertise by providing such services as LAN monitoring and problem resolution. ■



“Shiva is moving rapidly from a Macintosh LAN-centric view of the world to a pan-network focus that will encompass all of the major desktop networking environments.”

Dan Schwinn
President
Shiva Corp.

Shiva quietly carves niche with variety of offerings

Internet tools range from modems to gateways.

By Laura DiDio
Senior Editor

CAMBRIDGE, Mass. — Five-year-old Shiva Corp., a manufacturer of connectivity products for Apple Computer, Inc. Macintoshes, has become a quiet success story, attracting a customer base of tens of thousands since it began shipping products.

Shiva has enjoyed a steep revenue increase — its sales are expected to double this year to about \$30 million — due in part to the fact that its products are targeted at markets largely ignored by most other vendors, analysts said.

Shiva’s current roster of nine products includes everything from an entry-level 2,400 bit/sec modem to local and remote gateways.

In June, Shiva moved to bolster its position in the LAN connectivity arena with the acquisition of Novell, Inc.’s FastPath 4 gateway product and technology. Novell sold the gateway as part of its ongoing exit from the LAN hardware business.

Shiva’s booth at the recent MacWorld Expo/Boston show was abuzz with users placing orders for the FastPath 4 gateway. The current installed base of 35,000 FastPath 4 gateways is expected to swell to more than 60,000 within the next year, according to Dan Schwinn, the company’s president and founder.

The FastPath 4 gateway links Apple LocalTalk and Ethernet LANs, enabling Macintosh users to share files, printers and electronic mail with Ethernet users.

The gateway sells for \$2,795 and supports the Transmission Control Protocol/Internet Protocol, Digital Equipment Corp.’s DECnet and Apple’s AppleTalk Filing Protocols, as well as the Simple Network Management Protocol for net management.

Beginning in June, Shiva took over all manufacturing, sales and

development of the FastPath gateway. With assistance from Novell, the company expects to assume responsibility for support of all current FastPath users within the next six months, Schwinn said.

One user is US Sprint Communications Co. in Kansas City, Mo. Raymond Kirkland, US Sprint’s network manager, praised FastPath as “the most technically elegant product currently available to connect our Ethernet and Macintosh environments.”

Another user, Robert Fink, network specialist at Lawrence Berkeley Laboratory in Berkeley, Calif., agreed. The lab recently installed 50 FastPath 4 gateways to link dozens of networks at its campus. In addition, Fink formed a FastPath 4 user group in which users can exchange information about the product.

Shiva was founded in 1985 by Schwinn and fellow Massachusetts Institute of Technology graduate Frank Slaughter. The two initially planned to offer Macintosh applications but refocused in 1986 in light of growing demand for Macintosh connectivity products, particularly those for LAN environments.

The company now offers a line of interconnectivity products for a variety of LAN environments, including Novell NetWare LANs and DECnets.

Shiva’s flagship product is the NetSerial interface, which was introduced in 1987. NetSerial provides users with a high-speed interface between a peripheral device and Apple LocalTalk networks.

That was followed in 1988 with the introduction of the NetModem V2400, a 2,400 bit/sec modem for AppleTalk nets and the NetBridge, a router that enables users to connect two AppleTalk LANs.

In 1989, Shiva introduced a
(continued on page 18)

LANs selling despite industry downturn

Value-added resellers, others report strong sales of net operating systems, interconnection tools.

By Laura DiDio
Senior Editor

The slowdown in the computer industry has not spread to the local-area network marketplace, as users continue to purchase LAN products at a brisk pace, according to value-added resellers and others in the LAN industry.

This summer, users are snatching up the latest upgrades to Microsoft Corp.’s OS/2 LAN Manager and Novell, Inc.’s NetWare network operating systems, as well as internetwork bridges, routers and gateways, wiring concentrators and Intel Corp. 80386-based file servers, say value-added resellers.

“There may be a general slowdown in the computer industry, but LAN users are definitely in a buying mode,” said Robert Guaraldi, president and founder of Vallinor, Inc. in Westford, Mass. Vallinor ranks among the top 20 U.S. value-added resellers and

sells about \$1 million worth of LAN gear each month.

“Businesses are depending on LANs to survive in an increasingly competitive business environment,” Guaraldi said.

Vallinor’s current big sellers are twisted-pair Ethernet products from 3Com Corp. and Chipcom Corp., new document storage and retrieval systems, Microsoft’s Microsoft Windows 3.0, network adapter cards and LAN interconnection products.

Guaraldi said there is also growing demand for training.

“Our training courses for SQL Server, LAN Manager, and network design and installation are almost always filled to capacity these days,” Guaraldi said.

John Cellini, president of JVC Technologies, Inc., a Novell platinum dealer in Philadelphia, agreed. “Users have a voracious appetite for LAN equipment. Net-

(continued on page 18)

Alcom fax products give LAN users greater reach

By Susan Breidenbach
West Coast Bureau Chief

SAN FRANCISCO — At LANDEX ’90 here last week, Alcom, Inc. released new and enhanced facsimile server products that enable local-area network users to send faxes from within a variety of electronic mail systems and other applications.

Alcom unveiled Version 2.3 of its LanFax Gateway software, which has been enhanced with E-mail support and a number of wide-area connectivity options. Initially released in 1988, LanFax Gateway, which runs on a dedicated DOS workstation equipped with a fax board, was one of the first fax server products on the market.

The company also introduced the LanFax Redirector 1.0, which lets users fax documents in real time from within any application that supports the Communicating Applications Specification (CAS) established by Intel Corp. and Digital Communications Associates, Inc. The product is available in three options: as many as eight users for \$795, up to 25 users for \$1,595 and unlimited users for \$2,995.

Such applications include

WordPerfect Corp.’s WordPerfect 5.X and Lotus Development Corp.’s 1-2-3 when they are being used with Lotus’ Send-Off! add-on software.

Fax boards that can be used with LanFax Gateway include Intel’s Connection CoProcessor, GammaLink, Inc.’s XP and CP cards, Brooktrout Technology, Inc.’s TR-112 and The Complete PC’s 9.6K bit/sec boards, while the LanFax Redirector 1.0 supports any CAS-compatible card. The fax server and the user’s workstation can be separated by a wide-area link so that a single fax board can serve an enterprise-wide network.

A new feature in LanFax Gateway 2.3 is a FaxAssist menu that can be popped up inside an E-mail application, offering the user a number of automated messaging, printing and viewing options. When a sending option is selected, an addressing template pops up for entering the recipient’s name and fax number and any attachments to the message.

There is also a new urgency feature that lets the network administrator give certain users priority so that their messages are
(continued on page 18)

Alcom fax products give LAN users reach

continued from page 17

jumped to the top of the queue instead of being handled by the fax server on a first-come, first-served basis.

Products compatible with LanFax Gateway 2.3 include Da Vinci Systems, Inc.'s Da Vinci eMAIL, Banyan Systems, Inc.'s VINES Network Mail and 3Com Corp.'s 3+Mail.

LanFax Gateway 2.3 is available in four licensing options: eight users for \$795, 15 users for \$1,495, 30 users for \$2,295 and unlimited users for \$3,595. A LanTXL option provides connectivity with hard-wired telex lines for an additional \$1,495.

There are also options for linking the fax server to two public E-mail networks.

LanMCI connects the LanFax Gateway to MCI Communications Corp.'s MCI Mail, and LanESL does the same for Western Union Corp.'s EasyLink. These auxiliary products are priced at \$795 each.

Two more add-on products are LanFax DID, which automatically routes an incoming fax to the addressee's E-mail box, and LanFax Message File Interface, a tool kit for developing customized user interfaces to the fax server. They are priced at \$1,495 and \$595, respectively.

At NetWorld in Dallas next month, Alcom will be demonstrating a version of the gateway software that runs under Microsoft Corp.'s Microsoft Windows 3.0.

For more information, contact Alcom at 2464 Embarcadero Way, Palo Alto, Calif. 94303; (415) 493-3800. ■

Shiva quietly carves niche with offerings

continued from page 17

total of six products including new gateways and a 9.6K bit/sec modem.

The 9.6K bit/sec NetModem V.32 enables remote Macintosh users to dial into an AppleTalk network and share files, peripherals and E-mail with other users. Another notable product introduced last year was a multifunction router, called the EtherGate, which lets users link LocalTalk nets to Ethernets and wide-area networks.

Lee Doyle, manager of local-area network research at International Data Corp. in Framingham, Mass., said Shiva's aggressive product ramp-up, coupled with the acquisition of the Novell FastPath 4 gateway, has made the company a standout.

"Shiva has targeted one of the fastest growing areas in the LAN market — namely bridges and routers — and users like their products," Doyle said.

Shiva's future product plans include new tools for NetWare LANs and the introduction of a token ring-to-Macintosh LAN gateway in 1991.

"Currently, very few Macintosh users have installed token-ring nets. But we expect that to change dramatically within the next year," Schwinn said. "Token-ring LANs will gain widespread acceptance in the Macintosh market very rapidly from now on, so support for token ring will become a must for us." ■

FAXNeT is a service designed to help readers of Network World gather important information via FAX on products and services advertised in Network World.

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LANs selling despite industry downturn

continued from page 17

Ware 386 is selling handily and that means users are building bigger LANs, which require more wiring, hardware, consulting and training. People are lining up in droves to get into summer school," he said. "We've been booking about two or three six-figure orders a month for the past several months. We've sold dozens of copies of NetWare 386 since the beginning of the year, and over 60% of those orders were booked in the past six weeks."

Users are not only enlarging their existing departmental LANs, but are making the often expensive decision to retire more mature operating systems such as 3+Share and NetWare Version 2.15 in favor of the latest versions of the software.

Many users are outgrowing the older versions of these network operating systems as they run more compute- and memory-intensive applications and add more users to their nets, observes Tom Glover, technical director at 900 VIP Help, Inc. in Lake Oswego, Ore., which runs an independent NetWare telephone support line.

"Users are beginning to quickly switch to NetWare 386 in spite of the \$8,000 price tag because they've reached the saturation point on their 80286-based NetWare file servers," Glover said.

While he has no exact figures on how many NetWare users have recently migrated from earlier versions of NetWare to NetWare 386, Glover said the shift is significant based on the number of phone calls being made to the 900 VIP Help line. Last month, the company expanded its operations to 24 hours a day, seven days a week (NetWare hot line extends hours to serve users around the clock," *NW*, July 23).

Cellini cited the availability of the more robust NetWare 386 Version 3.1 and new NetWare Loadable Module applications as other key factors in the quickening pace of NetWare 386 sales.

Vallinor's Guaraldi said he's seeing a similar upsurge in LAN Manager sales. The company currently has an installed base of more than 100 3Com 3+ users. "We're finding that more users are starting to convert their LANs from 3+Share to 3+Open LAN Manager Version 1.1 because of its multitasking capabilities, naming services and greater security. At the same time, we're also seeing them upgrade their older servers to more powerful 80386-based servers," Guaraldi said.

"We're anticipating that about 30% of our 3+ users will convert to LAN Manager Version 1.1 or 2.0 this year, and that doesn't account for new users," he said. ■



NETWORK WORLD

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MANAGEMENT STRATEGIES

MANAGING PEOPLE AND TECHNOLOGY: USERS GROUPS AND ASSOCIATIONS

Dialogue

How much does the quality of a carrier's billing system influence your choice of carriers?

“The quality of a carrier's billing system is extremely important to a company like ours that has centralized accounting but multiple business units that need their own summary bill information. Only cost-per-minute ratios would rank higher.”

David Baumgarten

Director of telecommunications consulting services
McGraw-Hill, Inc.
Denver

“One of the reasons we went with US Sprint several years ago was because of their billing system, and we have been happy with it ever since. We need accurate and timely billing because we have about 500 locations that each need separate billing information. I'd say billing is No. 3 on the list for evaluating carriers, after service quality and price.”

Jim Beatty

Director of telecommunications
Hartmarx Corp.
Chicago

“A carrier's billing system means a lot. It was a major reason we selected MCI three years ago as our primary carrier for voice communications. At the time, we were using US Sprint at five or six locations and having horrendous billing problems, which weren't getting resolved in a timely manner. Also, AT&T didn't have a unified billing system for all the services it offered.”

Jim Bruggeman

Planning and administration manager for national telecommunications
Dun & Bradstreet
Information Resources
Murray Hill, N.J.

“It would have a significant influence. When we issued RFPs for long-distance services two years ago, the accuracy and timeliness of carrier billing accounted for 20% of the total evaluation. You need accurate billing for audit and control purposes and to recharge departments for long-distance calls. As a department head, you can't manage costs if carrier bills are late or inaccurate.”

Jeff Lipton

Director of office support and telecommunications services
University of Colorado
Boulder



Zale Lipshy University Hospital in Dallas.

Hospital hopes HL7-based net will ensure versatility

Facility installs \$3m distributed net architecture.

By **Wayne Eckerson**
Senior Writer

DALLAS — If you had the chance to build a hospital from scratch, what kind of network architecture would you implement?

Zale Lipshy University Hospital, a 160-bed private teaching hospital here that opened in late 1989, chose a standards-based, distributed architecture anchored by a fiber-optic Ethernet backbone interconnecting a variety of multivendor departmental systems.

The distributed architecture enables nurses, physicians and administrators using one of 150 workstations throughout the hospital to access data from any hospital system on the network, including laboratory, radiology, pharmacy and patient records applications.

“We now have a state-of-the-art infrastructure that will support the hospital's information system requirements for the next 10 years and beyond,” said James Garvey, president and chief executive officer of the hospital.

Based on Health Level 7 (HL7), an emerging communications standard in the health care industry, the distributed architecture gives Zale's departments the flexibility to implement information systems that meet their needs best and allows staffers to access any type of information, Garvey said.

Zale hired Perot Systems Corp., a systems integrator based here, to design and build the open systems architecture. The project took less than a year to complete and cost \$3 million, according to Chuck Lyles, marketing manager for Perot Systems.

According to Lyles, many hospitals are locked into a single-vendor architecture that forces departments into using systems that may not be meeting all their

needs. But freeing themselves from that information straitjacket requires rebuilding an entire computing and network infrastructure, which is an expensive proposition.

In contrast, “HL7 gives hospitals the ability to swap their departmental systems in and out without upsetting the whole system,” Lyles said.

System setup

Zale's fiber Ethernet backbone supports five Hewlett-Packard Co. file servers running 3Com Corp.'s 3+Open LAN Manager and a clinical management application from Quantitative Medicine, Inc. (QMI) that is based on Ashton-Tate Corp. and Microsoft Corp.'s SQL Server.

The QMI software compiles clinical data, as well as data from other departmental systems, and presents it in a standard format to

“HL7 gives hospitals the ability to swap their departmental systems in and out.”

▲▲▲

nurses and physicians working at HP Vectra workstations.

Clinical data includes nurse and physician notes and charts, as well as information sent directly from patient monitoring equipment, which captures data such as pulse rate, blood pressure and other vital signs.

QMI software supports HL7 interfaces to six departmental applications, most of which run under DOS or OS/2. The administrator

(continued on page 20)

Users subsidize EDI for smaller partners

Major users pick up costs for software, service to get more suppliers on-line with EDI programs.

By **Walter Sweet**
West Coast Correspondent

Many large users are tackling the problem of getting suppliers on-line with electronic data interchange by giving away or subsidizing the cost of EDI tools for smaller trading partners.

Getting a large number of trading partners on-line has been one of the biggest challenges for EDI users and is seen as one of the keys to the success of any major EDI effort. So users such as Sears, Roebuck and Co., R.J. Reynolds Tobacco Co., Levi Strauss & Co. and Southern California Edison Co. are footing the bill, at least in part, to get smaller trading partners involved.

Observers say a growing number of EDI users will adopt the strategy as they realize that the

benefits of bringing trading partners into their EDI programs outweigh the cost of subsidizing the packages.

Torrey Byles, a consultant with Input, a market research firm based in Mountain View, Calif., says this proactive approach can help users expand their EDI programs quickly. “That's one of the conundrums everybody's facing right now,” he said.

What's more, “This approach, with the larger partner absorbing part of the cost, is more equitable for implementing EDI because the big company receives a lot of benefits,” Byles said. “They're going to save a lot of money, so they should absorb some of the costs.”

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BOOK REVIEW

BY **ERIC SCHMALL**

Overcoming the leader vs. manager conflict

Mind of a Manager, Soul of a Leader, Craig Hickman
(New York: John Wiley & Sons, Inc., 1990), \$19.95.

Craig Hickman's ambitious goal is to find a “grand unified theory” of management, one that demonstrates how the opposing traits of leaders and managers can be combined to create excellence in an organization.

While Hickman does not provide any cookbook answers, he succeeds in demonstrating that leaders and managers have complementary qualities and that the dynamic tension between the two can be harnessed for the benefit of an organization.

In Hickman's view, leaders are people who possess vision, passion and the creative energy to spark an organization's soul. Managers represent the metaphorical mind, marked by the structured and deliberate approach to tasks.

Hickman avoids describing either type as preferable to the other, although he acknowledges that leaders these days exert an emotional tug on many writers in management sciences. He also concedes that organizations cannot succeed without effective managers.

The author devotes a substantial section of the book to describing various ways that organizations deal with the opposing pull of leaders vs. managers. He examines companies in which one type is obviously dominant, as well as organizations that have tried unsuccessfully to integrate the two camps.

Hickman also explores rare organizations in which leaders and managers find a level of mutual appreciation, where their opposing characteristics complement, rather than conflict with, each other. There is a cooperative spirit in these organizations aided by open communication, respect and shared values among leaders and managers.

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Schmall is a network systems manager for an insurance holding company.

Hospital hopes net ensures versatility

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tration and financial system, however, is on a Digital Equipment Corp. VAX processor running VMS. Other systems on the network include radiology, pharmacy, materials management and laboratory. Periodically, these systems download data into QMI's SQL data base.

The HP Vectra workstations used by nurses, physicians and administrators are located in intensive care units, medical/surgical units, nurse stations, psychiatric units and operating rooms.

The workstations also support menuing software from Polygon Associates, Inc. that allows users to access any DOS-based

application on the network. They also support the Presentation Manager graphical user interface, which enables users to access OS/2 applications running on the net.

Heart and soul

When planning the hospital's information system (IS) architecture, hospital administrators made a conscious decision to focus on clinical data, rather than financial data, which is the case at most hospitals.

"We put clinical information at the center of IS because, philosophically, we believe that the patient is the heart and soul of the hospital," said Karen Knecht, intensive care nurse manager at Zale.

All nurses and physicians received a day of training on the machines, which they found easy to use, Knecht said.

The workstations eliminate the need for nurses to copy essentially the same information on five different forms. Once the information is input into the data base, it is copied onto all clinical forms and records the hospital keeps, Knecht said.

Knecht said the HL7 architecture will enable Zale to develop an electronic medical record to replace paper records, which are cumbersome to use, time-consuming to produce and more prone to errors, Garvey said. Most of Zale's patient records are already in electronic form, although back-up paper copies are still maintained.

Perot Systems' Lyles said the hospital is testing optical storage devices that can store large volumes of electronic records. Unfortunately, the hospital has not found a system that can meet its needs. ■

Users subsidize EDI for smaller partners

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A microcomputer-based EDI package can cost from \$1,000 to \$5,000, which can be a financial burden for a small company, Byles added.

Using incentives and subsidization to encourage trading partner participation helps a major company improve the efficiency of business operations and eventually results in lower prices.

"The idea is you go in, give all of your trading partners microcomputer packages to run and turn your whole trading community onto EDI overnight," Byles said.

R.J. Reynolds has arranged for third-party EDI service and product providers to give its trading partners special deals on EDI packages and monthly service fees. Users can get EDI packages for about half price from the vendors referred by Reynolds. Reynolds will also pick up the monthly fee for EDI transmissions if trading partners deal exclusively with Reynolds. If a trading partner starts working with other firms, it has to pick up the monthly fee.

"It certainly has made it a lot easier for them to [get] on EDI with us," said Jim Pitts, manager of purchasing department planning with Reynolds. "Some of them wouldn't come on without it. It's a lot of money for a small company."

Today, Sears gives standards-based EDI software, and a personal computer if needed, to its trading partners along with a one-day training session. Next year, Sears Technology Services, Inc. will begin offering EDI transmission services and will market the software to its customers. Meanwhile, it will continue to offer it to its own trading partners free of charge.

IBM is offering a personal computer-based EDI package that large users may resell to smaller trading partners at a reduced price.

"There's a common movement in industries to accommodate smaller trading partners to make it conducive for them to get into EDI," said Jerome Dreyer, president and chief executive officer of the Electronic Data Interchange Association. "We have always said we've mastered the technology, and now it's a matter of implementing EDI."

Dreyer said companies are wise to look to their smaller trading companies to boost efficiency with EDI. With only its largest trading partners using EDI, a company cannot realize the full advantages of the technology.

"So what if the top 1,000 companies are using EDI if the other 19 million smaller companies aren't?" Dreyer asked. ■



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Overcoming leader vs. manager conflicts

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Because Hickman can't precisely quantify how this ideal state can be achieved, he focuses on specific differences between leaders and managers and how potential conflicts might be resolved.

While Hickman falls short of explaining how leader-manager conflicts can be resolved at the macro level of an organization, he succeeds in analyzing how they can be overcome at the individual, or micro, level. This alone makes the work a milestone in reconciling what has traditionally been viewed as the irreconcilable difference between leading and managing people. ■

THE INDUSTRY STANDARD

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Worth Noting

"I believe Mercury [Communications, Ltd.] will grow, but it will be years and years before it is comparable with British Telecom, if ever."

Tony Cornish
Deputy international
communications manager
Reuters Holdings PLC
London

World News

US Sprint Communications Co. recently announced four contracts worth a total of \$15.5 million to install packet-switching networks abroad. The largest deal is with Citibank N.A., which will spend \$8 million in the next 18 months to have 36 TP4900 packet switches and 70 TP8000 concentrators installed in offices around the world.

CIFRA, a retail and restaurant conglomerate in Mexico City, will install US Sprint packet switches in 150 retail locations around Mexico to construct one of the largest private retail networks in the country. Ssangyong Computer Systems Corp. will spend \$1.8 million on a private packet network in South Korea, and the value-added network carrier Taiwan Telecommunications Network Service Company, Ltd. will install \$1.8 million worth of US Sprint packet-switch gear in Taiwan.

Alpha Lyracom Pan American Satellite Corp. (PAS), a competitor to the International Telecommunications Satellite Organization, recently said it plans to launch its third satellite sometime after 1993. The satellite will provide video and private-line data services to the Pacific Rim and Asia. Currently, PAS has only one satellite in operation, which provides services to the Caribbean, North and South America, and Europe. A second satellite serving these areas is scheduled for launch in 1993. **■**

Agreement may lower user voice, data costs in Japan

Pact with U.S. opens net equipment, IVAN mart.

By **Walter Sweet**
West Coast Correspondent

TOKYO — Users and vendors last week said they expect costs to abate for dedicated voice and data circuits here due to Japan's recent agreement with the U.S. that liberalizes the country's market for net equipment and international value-added services.

The agreement not only makes it easier for companies to do business here, it should also save users money, observers said.

Under terms of the deal, suppliers of so-called network channel terminating equipment — which includes data service unit/channel service units — will be able to sell these devices directly to users, rather than to Japanese carriers. This should make it easier for users to purchase equipment directly from their preferred vendor.

Japan also agreed to let foreign companies build international private nets carrying voice and data to Japanese affiliates in which they own at least a 10% stake or between business partners that conduct at least 20% of their business with one another.

In addition, Japan will allow companies to route traffic from international private lines into the public telephone network in Japan.

Most of the changes will take effect by Sept. 1.

"That's pretty good news for us," said Robert Maire, project manager for Morgan Stanley & Company, Inc. "Allowing traffic to be dumped into the public network from the private network can bring substantial savings for us." Once data reaches Japan over a private net, the company will be able to drop it into the public network, rather than having to use local dedicated circuits.

Maire said Morgan Stanley has high-speed and low-speed lines running voice and data between New York and Tokyo and between Tokyo and Hong Kong. "Allowing us to send traffic for clients and run it over the public network will enhance our savings considerably," he said.

Another major provision of the agreement calls for the relaxation of surcharges that international value-added networks (IVAN) have paid to Japan's major telecommunications service providers.

Previously, U.S. companies paid surcharges of as much as 20% to Japanese carriers for circuits used to provide IVAN services. According to the U.S. government, American companies had to pay out about \$15 mil-

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AT&T, KDD to build fiber, satellite links into China

By **Barton Crockett**
Senior Editor

TOKYO — AT&T and Japanese international carrier Kokusai Den Shin Denwa, Ltd. last week reached an agreement with China to install new international fiber-optic and digital satellite facilities in the country.

According to AT&T, the facilities will be used to support the first international, digital leased-line services to China.

Under terms of the agreement signed with China's director general of telecommunications, the three organizations will jointly fund construction of an 800-mile undersea fiber-optic cable linking China and Japan, which is scheduled to be cut over in 1993.

The agreement also calls for installation of new digital satellite facilities supporting international private-line services to Shanghai and Beijing in 1991.

Gerald Happ, district manager

for international network planning at AT&T, who helped negotiate the deal, said most international switched services to the country are carried over analog satellite facilities and all private-line services run over analog satellites.

"Once you extend the fiber service to China, everyone will see how good it is and you're going to see demand go up fantastically," he said.

Happ said the financial and technical terms of the agreement are still being hammered out, but he estimated the cost of the undersea fiber-optic cable at between \$50 million and \$75 million.

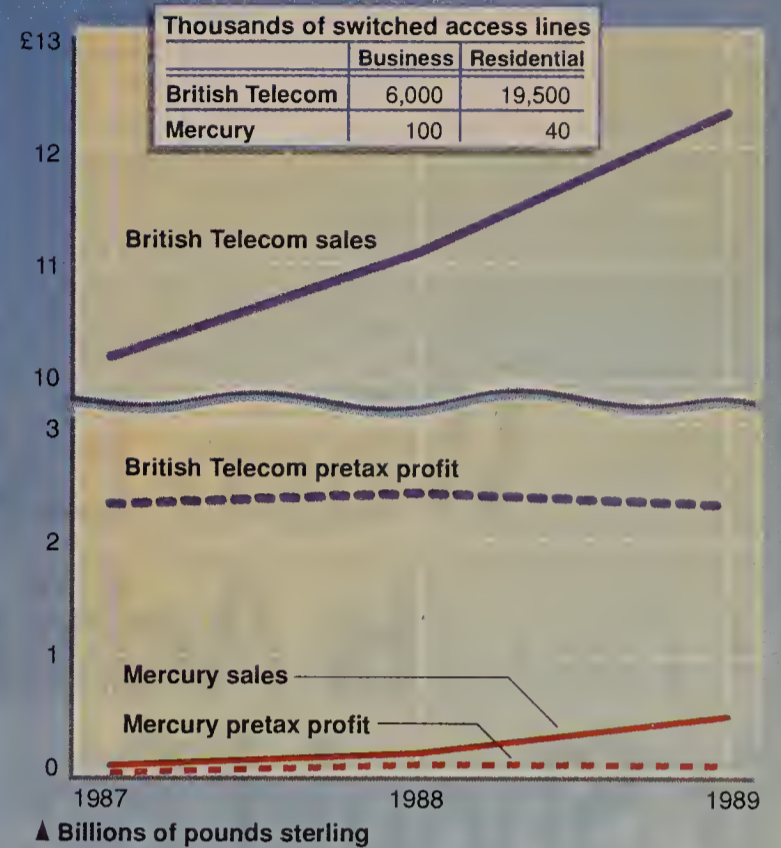
West Coast access

In order to access the satellite service to China, Happ said U.S. users will have to establish dedicated links to AT&T uplink facilities.

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Competition crawls in the U.K.

Financial results and market share of British Telecommunications PLC and Mercury Communications, Ltd.



U.K. users urge telco regulatory reforms

British push for less constraints on dominant British Telecom, extended net reach for Mercury.

By **Barton Crockett**
Senior Editor

LONDON — As the U.K. gears up for a major review of its network competition policy, users are lobbying for new initiatives aimed at improving carrier services and responsiveness.

Frustrated with a duopoly policy that many believe has failed to deliver adequate network competition, users are arguing for reforms that would lessen regulatory restraints on the U.K.'s dominant carrier, British Telecommunications PLC, and allow upstart carrier Mercury Communications, Ltd. to extend the reach of its network.

Users are arguing for these reforms in order to improve the quality of network services in a market where they believe fierce competition has failed to materialize and where services are lacking.

Unsuccessful policy

"We don't consider that the network competition policy has been a success," said Adrian Squires, carrier liaison officer with the Telecommunications Managers Association (TMA), a national user group in Orpington, England. "Whilst Mercury has been trying to get a foothold in the market, British Telecom has been highly regulated. That has

not been beneficial to our members."

Mercury Communications has been licensed as the U.K.'s only full-service competitor to British Telecom since 1984. The upcoming review, scheduled to begin in November, will evaluate the effectiveness of this competition and suggest reforms to existing policies.

Squires said users are eager for any new changes that increase their service alternatives and make Mercury Communications a more viable alternative to British Telecom.

Currently, British Telecom controls about 95% of the U.K.'s network services market and nearly all of the country's local-loop facilities and residential services (see graphic).

Mercury Communications' presence has been confined largely to digital private-line services for business users. For example, the carrier controls about half of the market for digital private-line services to the U.S. but has only about 40,000 residential subscribers to its switched services.

Conferring with regulators

Squires, who also works as assistant controller of information technology at The Rank Organization, said the review will be a

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U.K. users urge telco regulatory reforms

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sation PLC, a travel and leisure conglomerate in London, said that he is actively lobbying regulators and carrier officials for reforms favorable to TMA members.

He said that one of the TMA's top concerns is loosening the regulatory shackles on British Telecom. These constraints have kept British Telecom from offering several services from which users could benefit, such as virtual networks and custom contracts, he added.

Squires said users in the country need these services to compete effectively in the global economy.

British regulators should initiate reforms that extend the reach of Mercury

Communications' domestic network, he said.

For instance, Squires suggested that the country's Office of Telecommunications could require Mercury Communications to extend its network into more areas as a condition for continuing to receive a license to operate.

Currently, the majority of Mercury Communications' facilities are located only in major urban areas and the carrier has very little presence in rural areas.

Squires also said Mercury Communications should be given equal access rights. Currently, nearly all local serving offices in the U.K. are owned by British Telecom

and users have to install special network devices on their premises to route calls to the Mercury Communications net.

Squires said this adds about eight seconds to call setup times and keeps Mercury Communications from competing fairly in the switched services market. He also argued that Mercury should be required to work closely with cable TV operators as well as cellular and personal communications network service providers to extend the reach of its local access facilities.

Unknown reforms

But Squires and other observers caution that it is impossible to predict with any certainty what reforms will be adopted.

The licensing of a third national competitor is likely to be considered, but few

observers said they actually expect that to be allowed.

This is because of concerns that a third carrier would hurt Mercury Communications more than British Telecom and would keep any alternative carrier from gaining the economies of scale needed to compete effectively.

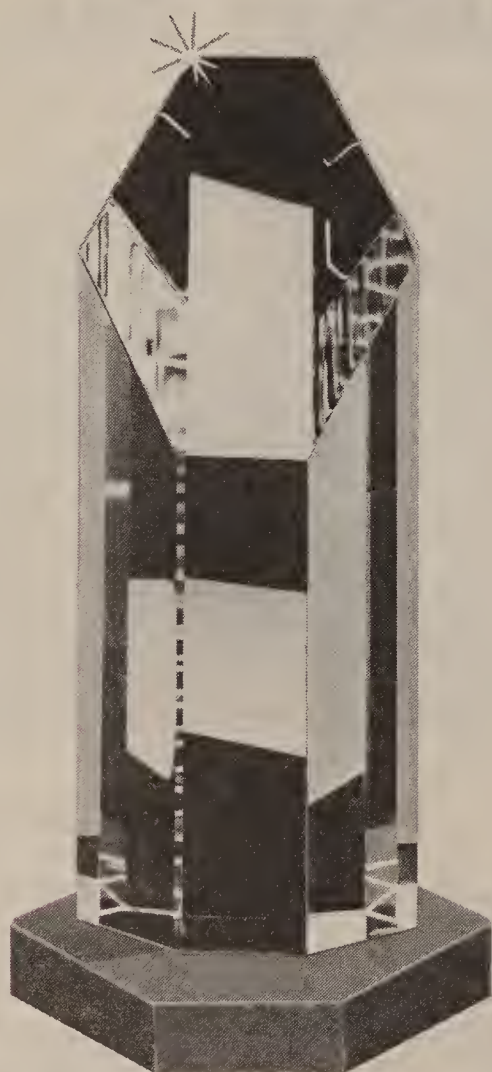
Squires said the TMA members are leaning toward this opinion.

Another likely area for examination is the U.K.'s satellite regulations. Currently, U.K. users are allowed to operate only one-way satellite networks. Many observers, however, predict that two-way satellite nets will be legalized, and Squires said the TMA members would favor that change.

Many observers also predict that British Telecom and Mercury Communications will be given the right to distribute video programming through their networks. Prospects for this reform look particularly good given that U.K. cable TV providers are able to supply local telephone services and have about 1,000 switched access lines in operation. □

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AT&T, KDD to build int'l links into China

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ties on the West Coast of the U.S.

He said users will be able to access the fiber-optic cable running to China via the Hawaii-4/Trans-Pacific Cable-3 undersea fiber-optic cable, which was cut over in 1989 and runs from the U.S. to Chikura, Japan. Access also will be supported from the Trans-Pacific Cable-4, which is scheduled to be cut over in 1992 and will also run from the U.S. to Chikura.

The Japan-to-China fiber link will run from just outside Shanghai on the Chinese mainland to Kyushu Island off Japan. Other fiber-optic cables will carry traffic from Kyushu Island to Chikura.

Happ said last year's political violence in China did not affect the deal. But an AT&T spokesman cautioned that the carrier still must receive government approval before moving ahead. He said the carrier is confident of its success.

Earlier this year, however, the U.S. State Department barred US West International, Inc. from participating in a consortium planning to build a fiber cable across the USSR because of concerns that the facility would compromise national security. □

Agreement to lower user costs in Japan

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lion in these fees over the past few years.

When these fees are removed, IVANs should be able to pass some of the savings on to users, resulting in less expensive telecommunications costs for companies, according to the U.S. Trade Representative office in Washington, D.C.

"For us, the most positive aspect of the agreement is the part that precludes [Kokusai Denshin Denwa, Ltd.] from charging a surcharge for private leased lines," said Ronald Bamberg, vice-president of business development and planning for BT Tymnet, Inc. "We will simply be paying less for leased lines."

Bamberg said details haven't been worked out but at least a part of their 20% savings will be passed on to users. "We'll be looking at the agreement more closely," he said. □

PRODUCTS & SERVICES

THE LATEST OFFERINGS FROM VENDORS AND CARRIERS

First Look

Racet introduces large server for Mac networks

Racet Computes, Ltd. recently took the wraps off **Mac-in-the-Box**, a dedicated file server that offers storage capacities from 1.3G to 15.7G bytes.

The product incorporates large quantities of storage in a unit along with an Apple Computer, Inc. Macintosh IIx motherboard.

Customers can order Mac-in-the-Box with two, four or six Racet 657M-byte hard drives for internal storage of up to 3.9G bytes.

Users can increase server memory to 15.7G bytes by attaching the company's GigaSTOR expansion cabinets.

According to Racet, Mac-in-the-Box accesses data in as little as 13.5 msec. An optional intelligent caching controller can deliver data as quickly as 0.5 msec.

Pricing ranges from \$2,995 to \$4,995, depending on configuration.

Racet Computes, Ltd., 3150 E. Birch St., Brea, Calif.; (714) 579-1725.

Ashton-Tate tailors dBase IV for DECnets

Ashton-Tate Corp. recently announced **dBase IV** for Digital Equipment Corp. VAX/VMS systems.

The data base management system, which runs on DEC VAXes, is specially configured for use in DECnet environments supporting DEC's Network Applications Support (NAS) strategy.

Support for NAS allows dBase IV to act as a front-end DBMS requestor for workstations that need to access data on VAX Rdb/VMS data bases throughout a companywide network.

In addition, dBase IV users on a DECnet can access IBM mainframe data bases such as DB2 by using NAS gateway software.

For single-user workstations, dBase IV for VAX/VMS costs \$1,295.

Mid-range system packages for DEC's VAX 4000 are priced at \$21,000, and a version for the VAX 6000-410 is priced at \$33,000.

Ashton-Tate Corp., 20101 Hamilton Ave., Torrance, Calif.; (213) 329-8000. ☐

Zenith announces device to connect local, remote LANs

Galaxy Exchange handles bridge/router functions.

By Jim Brown
Senior Editor

GLENVIEW, Ill. — Zenith Communication Products recently introduced a device that combines the functionality of a local-area network bridge and router to connect local and remote LANs.

The Zenith Electronics Corp. division's Galaxy Exchange is a modular unit consisting of a chassis with a 16-bit data bus and four interface board slots that support a mix of LAN and wide-area network interface boards.

The LAN interface boards connect token-ring and Ethernet LANs running over different transmission media to the Galaxy Exchange, while WAN interface boards let the Galaxy Exchange communicate over 56K and 64K bit/sec leased lines, as well as T-1 and fractional T-1 lines.

Zenith is supplying interface boards for the Galaxy Exchange that link Ethernets running over shielded and unshielded twisted-pair wire, thick- and thin-wire coaxial cable, fiber-optic cable and broadband Ethernets that operate at 4M bit/sec. The company also supplies boards that link 4M and 16M bit/sec token rings running over IBM Type 1, 2 or 3 ca-

bling to the Galaxy Exchange.

Lastly, Zenith supplies three boards that use either an RS-422, X.21, V.35 or RS-232 interface to link the Galaxy Exchange to a leased line. One board supports a single T-1 or fractional T-1 circuit, while another supports a single 56K or 64K bit/sec leased line, and the third supports three 56K or 64K bit/sec leased lines.

The Galaxy Exchange supports the Spanning Tree Algorithm, which ensures that packets do not continuously traverse the network if the destination node cannot be found, and IBM's Source Routing algorithm, which is used to route traffic between different token-ring networks.

The Galaxy Exchange costs \$4,995. Interface boards cost extra and range from \$395 to \$4,300 each. A version of the network management software for microcomputers on an Ethernet LAN costs \$2,950, while a version for a microcomputer on a token-ring LAN is priced at \$3,950.

The product is sold through value-added resellers and systems integrators. For more information, contact Zenith at 1000 Milwaukee Ave., Glenview, Ill. 60025; (708) 391-8000. ☐

Fujitsu takes wraps off ISDN adapters for DMS-100

SAN JOSE, Calif. — Fujitsu Network Switching of America, Inc. last week announced two Integrated Services Digital Network terminal adapters that support Northern Telecom, Inc.'s DMS-100 central office switch.

The terminal adapters, the SRS-400 and SRS-410, will enable users to link devices — including minicomputer- and mainframe-based terminals and personal computers — to ISDN Basic Rate Interface (BRI) lines.

Fujitsu said the new terminal adapters are based on a flexible design that enables customers to pop out a removable firmware cartridge that supports the DMS-100 central office switch and replace it with another cartridge for AT&T central office switches.

The SRS-400 can support attachment of asynchronous and synchronous terminals to a single BRI line. The adapter supports B-channel or D-channel packet-switched data and B-channel circuit-switched data.

The SRS-400 supports data

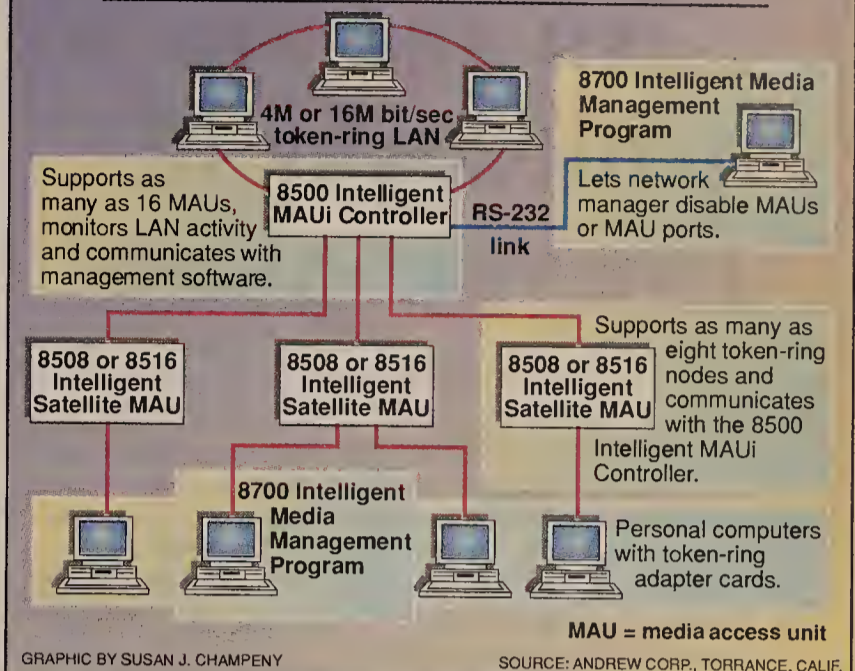
transfer speeds up to 19.2K bit/sec and comes with support for both V.120 and V.110 rate adaption standards, which fills in the unused portion of the 64K bit/sec BRI channel. Rate adaption enables a terminal or personal computer, for instance, to communicate over an ISDN B channel at data rates less than 64K bit/sec.

The SRS-410 also lets users communicate over a single BRI line but is better suited for higher bandwidth applications that use switched digital services — such as Group IV facsimile transmission and videoconferencing.

It offers users two V.35 interfaces to hook up synchronous and asynchronous terminals. The SRS-410 supports circuit- and packet-switched data over BRI B channels. It supports transmission speeds up to 64K bit/sec and V.110 rate adaption methods.

Both models will be available in September. Fujitsu, which sells the products through distributors, said pricing would range from \$800 to \$1,500 each. ☐

Andrew Corp.'s LAN management



Andrew to intro LAN management system

Intelligent Media Management System will enable users to control hardware in token-ring networks.

By Tom Smith
New Products Editor

TORRANCE, Calif. — Andrew Corp. is expected to introduce next month a net management system for 4M and 16M bit/sec token-ring local-area networks that enables users to monitor and control LAN-attached devices.

The company's Intelligent Media Management System will allow users to isolate hardware faults on a token ring and issue commands to shut down a media access unit (MAU) or, in some instances, disable a single workstation port on an MAU.

The Intelligent Media Management System consists of three hardware components and one software package.

The 8500 Intelligent MAUi Controller links any eight-port IEEE 802.5 MAU to the token ring and can monitor MAU conditions. In the event of a failure, the device works with the 8700 Intelligent Media Management Program to take down a MAU.

The 8700 software lets net administrators monitor activity on the LAN hardware from a central IBM Personal Computer AT workstation. The software collects addressing data on hardware errors — such as broken cables and workstation beaconing (in which a workstation transmits data onto the ring without use of the token) — and controls the MAUs and attached workstations.

Andrew Corp. also offers its own 8508 eight-port or 8516 16-port Intelligent Satellite MAUs, which connect to the 8500 MAUi Controller. When used in tandem with the controller, the satellite

MAUs enable the 8700 net management software to isolate faults down to the port level and turn off only the faulty port instead of shutting down the entire MAU, according to Peter Galvin, LAN products marketing manager.

The 8508 and 8516 MAUs have no intelligence of their own, but when paired with the 8500 MAUi Controller, they can report the status of attached workstations and their token-ring adapters to the controller.

The 8500 MAUi Controller can communicate with the net management workstation in one of two methods: via in-band signaling over the token-ring cabling or through an RS-232 out-of-band link. Many LAN hardware management systems only provide out-of-band management links, which force users to run a separate cable to the net management workstation.

Lastly, Andrew Corp. will offer a stand-alone intelligent MAU, which bundles the functions of an 8500 MAUi Controller and an MAU in a single unit.

Andrew Corp.'s management system is expected to be available by Sept. 1. The 8508 and 8516 Intelligent Satellite MAUs cost \$895 and \$1,295, respectively. The 8700 Intelligent Media Management Program costs \$1,995. The 8500 Intelligent MAUi Controller and the 8600 Standalone Intelligent MAU cost \$3,995 each.

The Network Products Division can be reached at 2771 Plaza Del Amo, Torrance, Calif. 90503, or call (213) 320-7216. ☐

OPINIONS

NETWORK PLANNING

BY DAVID CRAWFORD

Zen and the philosophy of five-year plans

In an ideal world, we would plan our networks as the textbooks say we should. We would carefully assess needs, choose hardware and software on their technical merits alone and have a thorough blueprint on paper before laying one strand of cable or attaching a single connector. We would never allow the clamoring of users to alter our course either.

Unfortunately, we build our networks in the real world, not in the ideal one. And in the rigorous school of reality, long-term network planning is impossible.

History hinders our plans because we usually inherit our networks. Like city planners, network managers can't just start over; we must work with the computers and communications systems already installed. The equipment we inherit limits our choices because networks tend to be self-perpetuating.

Today, a net plan that covers a 10-year span would be absurd. Who can say what computers will be like a decade from now?

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Most technical people don't realize they are building a network until several — often incompatible — data communications systems are in place. This creates the central paradox of network design: By the time the need for an all-encompassing network plan becomes apparent, it's too late to make one.

Politics sabotages our plans because the top executives in an organization have the power to make decisions that affect our nets. If the chief executive officer decides to buy a Big Blue mainframe, the network plan will have to mention Systems Network Architecture, even if that token gesture fails to ring true.

The decentralization of data processing, caused by the shrinking size and cost of computers, also subverts our network plans. Now that computers can be purchased from petty cash, anyone can buy one — and they usually do. A few months from now, they'll demand to be connected to your network. They'll assume, with disarming naivete, that connecting their alien machine to your network should be as easy as splicing wires. In an ideal world, they would be right.

Science puts a principle of uncertainty into our plans by shifting the terrain of networking technology even as we try to build on it. Today, a network plan that covers a 10-year span would be absurd. Who can say what computers and networks will be like a decade from now? Even a five-year plan seems wildly optimistic.

When science makes the impossible commonplace, even the best planning decisions of the past come to look like expensive mistakes. For example, we were told that telephone wiring could never handle high-speed data transmission. Now, with clear hindsight, we wish we had waited for twisted-pair technology to emerge.

Faced with these obstacles to rational network design, we can only adopt the resignation of Eastern philosophy and accept the world as we find it. Like a Zen thinker who strives to have no thought, the network manager must plan to have no long-term plan. Then when our bosses marvel at how well these makeshift networks function, we can clap with one hand and say, "Yes, it's all going according to my plan." ■

Crawford is network coordinator at California State University in Northridge.

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EDITORIAL

Thanks for making NW bulletin board a success

We'd like to thank our readers for making *Network World's* electronic bulletin board system (BBS) a success.

Since we brought the system on-line in early June, more than 600 readers have signed on, making the BBS an active and valuable forum for readers to exchange ideas, get advice and share their viewpoints.

Using the BBS, readers can communicate with any *Network World* staffer — including our own technical personnel and members of our subscription department — as well as other subscribers using the BBS' private electronic mail function.

In addition, readers can communicate with the entire network community using the board's Open Forum function. They can leave a letter to the editor or a story idea, or they can pose a question for our editors or readers.

We're pleased to see so many readers helping one another

solve technical problems, discussing their experiences with products and services, and exchanging advice on network strategies. Our editors have found the BBS a valuable tool for assessing reader concerns and getting information and sources for stories.

Use of the BBS has exceeded our expectations to date — we think it's a hit. But don't take our word for it. Consider this review from *Boardwatch* magazine, the leading voice of BBS users.

"We thought we'd take a peek . . . but instead we spent 30 minutes reading through the traffic. There are editors actively engaging some very knowledgeable readers in serious discussions of networking issues.

"How exactly do you define a [network] site? Which is better for a certain application, token-ring or Ethernet? There's a lot of interest in linking LANs through the public switched telephone network. We even found discus-

sion of which long-distance carrier offers the best charge card deal," the article said.

"There was none of the vacuous, ego-charged posturing so common in many message conferences. Just a very lively participative exchange of technical strategies for networking — very much in keeping with the theme of the publication.

"If you are struggling with [such] issues, you might find the group of callers assembled here a valuable resource."

For those readers who've already signed onto the BBS, thanks. For those who haven't, we invite you to take advantage of the power of networking.

You can use any IBM, Apple Computer, Inc. or other micro-computer to dial into the BBS at (508) 620-1160 or (508) 620-1175 (300 to 2,400 bit/sec) or (508) 620-1178 (speeds up to 9.6K bit/sec).

We look forward to hearing from you — on the BBS. ■

OPINIONS

COMMUNICATIONS TERMINOLOGY

BY HENRY ZALMAN

Credibility hinges on the ability to use terms correctly

Recently, I've sat through several presentations by value-added network and interexchange carrier salespeople about 9.6K baud lines and 56K baud digital services. Whenever I hear references such as these, I cringe. It really bothers me to hear people in the communications industry misuse terms with which they are supposed to be intimately familiar.

Perhaps I'm making a lot of stew out of a little oyster, but supposedly knowledgeable people should be aware of the difference between baud and bit/sec. Vendor representatives who mix the two terms instantly lose credibility in my eyes, no matter how intelligent they may otherwise be.

Lately, I seem to be hearing people make this mistake more than ever. Perhaps as more people enter the field of telecommunications, they are picking up the bad habits of their mentors. Certainly, there are more people in the field with degrees in telecommunications of one sort or another. And they really ought to know better.

However, the worst offenders of this heinous crime are computer programmers. I have never heard one of them use the term "bit/sec."

Perhaps this is because from their standpoint, there's no such thing as modulation and coding schemes. The bits come out of the computer, and the bits go back in. What happens beyond that point is the purview of those "comm people." But we comm people must be aware of what our technology does and refer to it accurately. Our credibility as professionals is on the line.

As we all know, a baud is the actual signaling rate on a circuit. If there is a state change in the signal 1,200 times every second, then that line is signaling at 1,200 baud. Due to sophisticated coding schemes, it is possible

to encode more than one bit in each change of signal. Thus, a 9.6K bit/sec modem may actually be transmitting a signal at 1,200 baud.

It is, therefore, erroneous to refer to a modem as "9.6K baud." A 1,200 bit/sec modem is actually transmitting at 1,200 baud, but to be really accurate and consistent, it is more appropriate to refer to the former term. Baud is really an old telegraphy term, in use before the telephone was a gleam in Alexander Graham Bell's eye.

But enough of lectures. Why should you care? After all, most

We comm people have a tendency to misuse terms we supposedly understand.

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people understand what you mean when you say 9.6K baud. Isn't all this a bit pedantic?

Perhaps... but then perhaps not. Some of the people you will encounter in your career do know the correct terms. And if they are people you work with professionally, you may end up losing credibility. Regular misuse of technical terms that are important in your field will send people the message that maybe you don't know that much about what you're doing.

Not surprisingly, we comm people have a tendency to misuse a lot of terms we supposedly understand. A few of these are:

■ **Modulation vs. coding.** Modulation is a change in an analog carrier signal. A digital bit can be represented on an analog line by the appropriate modulation.

Coding is slightly more abstract, meaning that a given signal event can have any of a number of meanings, depending on the code. With the proper cod-

ing, a 9.6K bit/sec bit stream can be modulated onto an analog line at 1,200 baud. Coding can also be used to represent an analog signal on a digital line, as in a coder/decoder. Each segment of code represents a portion of the analog signal.

■ **Multiplexing vs. concentration.** Multiplexing is a means of providing service for more than one circuit on a single signal path. It is based entirely on the characteristics of the signal, not the content.

For example, a statistical multiplexer looks at the usage of a low-speed line to determine when it gets a time slot on the high-speed side. It has no knowledge of the contents of the signal. A concentrator is a more sophisticated device that determines routing and scheduling based on knowledge of the message's contents.

■ **Medium vs. media.** Medium is the singular; media is the plural. This one is so widely misused that correct usage is practically impossible for some people to understand. "Medias" (a plural of a plural) is really stretching credulity. "But I'm not an English major!" you complain. If you're a manager, engineer or sales representative, communicating well should be part of doing your job well.

■ **Gateway vs. bridge vs. router.** Don't even try to get this one straight. Equipment vendors have so perverted the meaning of technical terms here that nobody knows what they mean anymore. They are, to quote Homer, "words like winter snowflakes."

You probably have more immediate issues to resolve than the proper usage of technical terms. But most people derive satisfaction from an accurate and detailed knowledge of their chosen field.

Accuracy in your communication about communications won't hurt and may help your credibility. And in an increasingly competitive telecommunications job market, every thing you do right can be an edge. ■

Zalman is a consultant with an applied research and engineering firm in the Boston area.

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TELETOONS

BY FRANK AND TROISE

The Future of Networking: EPISODE 94

April 1, 1999 • San Francisco

The harshest sentence ever recorded in legal history is levied against a convicted computer hacker.



LETTERS

Defending free speech

In regard to your article on the Electronic Frontier Foundation ("Ex-Lotus exec Kapor forms users rights organization," *NW*, July 16), good work! But please allow me to clarify some details that may be misleading.

Steve Jackson Games of Austin, Texas, publishes role-playing games; the book for which the Secret Service raided the company was an innocuous game supplement based on the Cyberpunk science fiction genre. Although the Secret Service insisted that it was a handbook for computer crime, the book dealt entirely with a futuristic world, focusing on high-tech equipment and global computer networks that do not exist yet.

Furthermore, it should be noted that the Secret Service raided Steve Jackson Games several weeks before the publication of the book in an apparent effort to impose prior restraint and prevent its distribution, a constitutional issue that will be raised in the court case.

The book, titled *GURPS Cyberpunk*, was reconstructed

from play-testing materials and published in May. It can now be found in games and hobby shops and in Waldenbooks Company, Inc. outlets across the nation.

I urge members of the computer professional community to read this book and see just what the government considers dangerous and subversive enough to require a sealed search warrant.

Robert Schroeck
Systems analyst/writer
Steve Jackson Games
Austin, Texas

A worn-out joke

I'm tired of trade publications and telecommunications managers thinking they are somehow witty in making up new meanings for the acronym ISDN. One recent edition
(continued on page 38)

Network World welcomes letters from its readers.

Letters should be typed, double-spaced and sent to Editor, Network World, 161 Worcester Road, Box 9172, Framingham, Mass. 01701.

Letters may be edited for space and clarity.



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FEATURES

Climbing the corporate telecom ladder

Today, reaching the higher rungs of the telecommunications ladder is no easy proposition.

Whether chief information officer (CIO), vice-president of telecommunications, local-area network administrator or chief networking architect, high-powered telecommunications jobs are hard to come by these days. Corporations are freezing senior staff positions as they downsize and flatten their reporting structures. Many have reconsidered new networking technologies — and hence networking jobs — in the cold light of experience and disappointments of the past.

"The economy has softened, and companies are holding tight on positions that don't readily appear to make a direct and immediate contribution," says Frank Schoff, president and owner of Management Recruiters, Inc. of Hendersonville, N.C., a telecommunications head-hunting firm.

"Technology is changing so rapidly that corporations are afraid of making major decisions as to title and personnel changes," says Nancy Boyd, director of major accounts for National Telecom Placement in Scarsdale, N.Y. "Over the last year, there have been changes in lower-level management but virtually no openings in senior management."

Getting tough on telecom

Although new job titles and responsibilities are emerging — such as LAN manager, director of network planning, network development specialist, director of networking and communications — businesses are looking at telecommunications in a more hard-headed manner than before.

Emmett is a free-lance writer based in Hewitt, N.J.

Many companies are reducing telecommunications staff and budgets in keeping with a more profit-minded mentality. But at the same time, they're demanding that vendors play a more critical role in implementation of technologies.

"The shift is away from heavy technologies [in-house] and more to the management of business needs," Schoff says. "There's more of a focus on contribution made than function performed these days. The concept of being an in-house utility, for example, is, if not passe, becoming so."

Instead, businesses are looking for new ways to use their communications strategically, "as a weapon that changes the entire competitive position of the business," explains Dixon Doll, chairman of the DMW Group, Inc. in Ann Arbor, Mich.

For this reason, senior telecommunications jobs have become more visible, more significant and undergone "titular inflation or escalation," as Doll calls it.

"It's not strictly an inflation of titles. There's actually been an increase in responsibilities," Doll says. "The driver is that more and more businesses are running on networks."

"Predictably, the costs of outages and problems caused by networking disruptions have gone way up," he continues. "What this means is that organizations are placing a greater premium on [network managers] to mask

these disruptions and provide a sufficient level of [networking] intelligence and functionality."

Indeed, the thrust of networking jobs today has turned from managing technology to "managing relationships, both with the vendor and the customer," Schoff says.

People skills important

People skills have become the new telecommunications calling card of the 1990s, says Edwin Sherin, senior vice-president and CIO of Primerica Corp., a New York-based diversified financial services company.

"Before, the emphasis was on very technical telecommunications skills," he says. "Now people need not only these skill sets, but they must also be good negotiators and good managers of third-party providers."

At Primerica, for example, which merged with Commercial Credit Corp. in 1988, the emphasis is now on outsourcing, letting a third party — in this case, AT&T — provide networking services. New supervisory jobs that report to Sherin, including director of engineering and director of billing and administration, concentrate on improving that third-party relationship.

"We have a manager of billing systems [reporting to the direc-

(continued on page 37)

New job titles, new career paths and a job slowdown are reshaping the networking industry.

By ARIELLE EMMETT

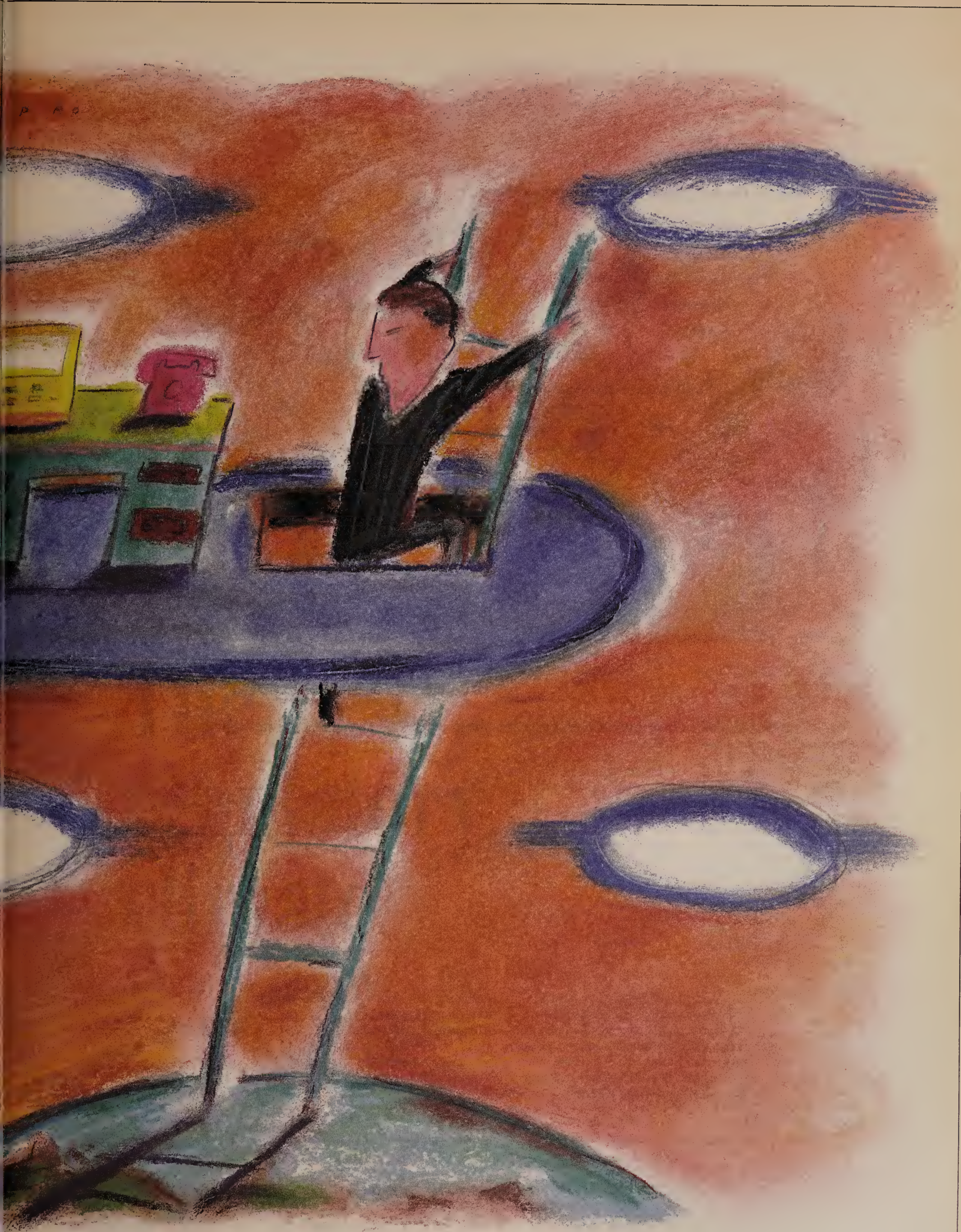


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The new regulatory climate

A look at changes in the regulatory policy-making team under the Bush administration.

CONTINUED FROM PAGE 1

FCC Chairman Alfred Sikes is regarded as a consensus builder in developing public policies for the communications industry.

At the same time, he has taken a hard-line approach to the regulated companies over which he has authority. Consider the following:

- Sikes imposed the FCC's maximum \$1.4 million fine on Nynex Corp. and ordered the company to rebate more than \$35 million to ratepayers for violations of the FCC's rules and policies governing transactions with affiliates.

According to the FCC, an audit of New York Telephone Co. and New England Telephone and Telegraph Co. buying practices involving the Nynex procurement subsidiary, Materiel Enterprises Co., revealed that the telephone companies purchased equipment and supplies from Materiel Enterprises at prices that were inflated

by a total of \$118.5 million.

Approximately \$35 million of this was passed along to interstate ratepayers.

Nynex responded to the FCC's punishment imposed early this year by saying that some of the rules were not in force for part of the time during which the alleged violations took place. Senior FCC staffers termed the Nynex filing lame and pathetic.

Such talk on the part of regulators hasn't been heard in Washington, D.C. for more than a decade.

- The Chicago-based Centel Cellular Telephone Co. entered a consent decree with the FCC in which Centel Cellular agreed to pay \$1 million and undertake a two-year educational safety awareness program on antenna marking and lighting requirements.

Centel Cellular, according to the FCC, had violated the rules by not lighting two of its antennas, one in North Carolina and the other in Virginia. Two people were killed in North Carolina
(continued on page 32)

Pearce is president of Information Age Economics, Inc., a telecommunications research firm in Washington, D.C.

(continued from page 31)

when a helicopter ran into the Centel Cellular tower. Sikes said the payment and educational program will demonstrate the importance the FCC places on ensuring strict compliance with *all* FCC rules and regulations.

According to one long-term FCC staffer who requested anonymity, "There is a feeling that we have finally emerged from the Dark Ages of no regulation or simply ignoring the law and the rules that we are supposed to enforce."

Since becoming chairman, Sikes has shown that he wants to regulate the communications industry effectively. He knows that if the FCC is to get more money and more regulatory power from Congress, he and the agency must continue in this direction.

And indeed, the various bills introduced by U.S. House and Senate leaders, which are designed to loosen the Modified Final Judgment restrictions and give more regulatory oversight to the FCC, mandate a tough pro-regulatory stance from Sikes and the other commissioners.

But the chairman is stuck in a catch-22 situation: He cannot regulate effectively until he gets more resources from both Congress and the president's Office of Management and Budget, but he won't get

communications companies, among others.

In addition, an important part of the FCC's rule enforcement involves processing thousands of staff decisions made on what is known as delegated authority, which essentially gives senior staffers permission to make unilateral decisions as long as previous policy on the issue has already been established.

An example of delegated authority is the FCC's handling of AT&T's Tariff 12 for custom networks, which seldom involves the attention of the five commissioners. In fact, changes to tariffs such as this are usually approved on delegated authority. This type of enforcement represents about 90% of what the FCC does.

In the enforcement of rules area, the

FCC is weak. According to a senior FCC staffer, "We are desperately short of resources. We simply cannot do the work in a timely fashion. A lot of rule violations totally escape our attention because of a lack of resources. Sikes has to fix this, and soon. Otherwise, everyone will know that they can break the rules and get away with it."

For the past several years, the FCC existed on a budget of a little less than \$100 million.

That budget has increased under Bush by 10%, to \$110 million, and will increase even further in the future unless the Bush administration or Congress decides that tough budgetary restraints are preferable to increased taxes.

The bottom line, it appears, is that a lot

rests on Sikes' shoulders. Over the next several months, he must pull off a multifaceted coup if he is to stand any chance of achieving his vision of creating the information age in which the U.S. will play a dominant role.

Sikes must continue to regulate effectively with his current meager resources, while placating the Hill and enlisting the support of the president. During this period, his already overworked staff must maintain their vigor and continue to regulate effectively.

If Sikes can pull that off, then possibly, Congress will give him more money and power over the business destinies, not only of the regional Bell holding companies, but also of other leading firms in the communications industry.

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“There is a feeling that we have finally emerged from the Dark Ages of no regulation or simply ignoring the law.”



those resources until he begins to regulate more effectively.

There have been setbacks, of course, and even some hostility toward what Sikes is attempting to accomplish. Clearly, the most severe setback is the recent 9th U.S. Circuit Court of Appeals opinion reversing the FCC's Third Computer Inquiry policy. Currently, the FCC is embarked on a rule-making proceeding designed to establish a new policy dealing with the convergence of communications and computers that some wags are dubbing Computer III.5.

Another blow came when senior politicians on Capitol Hill ordered the General Accounting Office to conduct an intensive investigation of the FCC to establish whether the agency is fulfilling its legislative mandate to regulate the communications industry.

Consider what the FCC does:

■ **Launches rule-making and public policy proposals.** This part of the FCC's work gets all of the publicity, but it represents only 10% or less of what the agency actually does.

■ **Enforces the rules laid out in Volume 47 of the Code of Federal Regulations.** The FCC receives its authority for developing such rules from the Communications Act of 1934. Some examples of rule enforcement are found in the Nynex and Centel Cellular cases mentioned above, numerous court battles, as well as licensing of radio and TV stations, common carriers, private carriers and mobile



What to expect from our new gateway

Like Sikes, Bush's antitrust chiefs — James Rill, the new assistant attorney general for antitrust at the Department of Justice, and Janet Steiger, the new chairwoman of the FTC — appear to be intent on bringing back old-style enforcement.

Both Rill and Steiger have made it clear that we can expect a significant change in rhetoric, action, enforcement and policy in the 1990s, including at least a partial return to the policies of vigorous antitrust enforcement that characterized the 1960s and '70s.

Five trends led to the decline of antitrust policy and enforcement during the 1980s:

- The increasing globalization of our economy, giving rise to the fear that foreign companies would dominate the U.S.

economy largely because antitrust restrictions either don't apply or are ignored overseas.

- A shift in intellectual antitrust and economic thinking to the so-called Chicago School, wherein an unrestrained market could be counted on to achieve efficiencies and pro-competitive outcomes — at least in most cases.

- The appointment of conservative federal judges whose economic views were more conservative than those judges appointed in the 1950s, '60s and '70s. These conservative judges espoused the views of the Chicago School, even though most of them had never studied economics.

- The massive reductions in the budgets for antitrust enforcement promoted, somewhat vigorously, by the Reagan ad-

ministration. These budget cuts affected both the Antitrust Division of the Justice Department and the FTC.

- The breakup of AT&T. The outcry against the divestiture of AT&T, considered by many to be an efficient and effective provider of low-cost telecommunications services and equipment, has since made policymakers reluctant to tackle antitrust cases.

Some of these reasons for the decline in antitrust policy have been discredited. For example, no one seriously contends anymore that the breakup of AT&T destroyed the U.S. communications infrastructure. Indeed, some countries are imitating our pro-competitive policies; the Japanese are considering breaking up their telecommunications monopoly, Nippon Telegraph

and Telephone Corp.

Also, with Reagan's departure, Chicago School thinking has become passe, especially in light of the abysmal failure of the deregulated savings and loan industry, the numerous criminal acts on Wall Street following relaxation of Securities and Exchange Commission rules, and the serious problems associated with airline deregulation. Influence peddlers in Washington, D.C. no longer take conservative free-market proponents and supply-side economists seriously.

Finally, healthier budgets for the bureaucracy are coming back in vogue, and Bush has advocated that industry and big business should be subjected to the law.

So antitrust enforcement is back — and it may stay around for a while. Enforcement of antitrust laws through criminal prosecution, which seeks heavy fines and jail sentences, is exclusively within the jurisdiction of the Justice Department.

Assistant Attorney General Rill promises that criminal enforcement of the Modified Final Judgment will be pursued with

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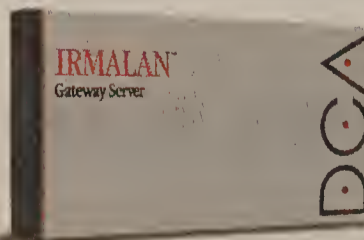
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Enforcement of antitrust laws through criminal prosecution is exclusively within the jurisdiction of the Justice Department.

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vigor. He says that price fixing, bid rigging and other forms of cartel behavior won't be tolerated and that he will assist the states' attorneys general in the prosecution of local criminal violations.

Predatory pricing, a problem that has haunted the telecommunications industry for years, will again be the subject of concern at the FTC and the Justice Department, along with horizontal restraints — joint activities among competitors that may raise antitrust problems.

But there will continue to be some restraint exercised in proceeding against mergers and acquisitions. Rill has made it clear that there will be no return to the zealous antitrust policies of the 1960s and '70s, where theories of vertical foreclosure, deep pocket parents, reciprocity or potential competition were closely analyzed before mergers were approved.

Nonetheless, the antitrust officials will closely scrutinize mergers that significantly increase concentration in markets that are already relatively well concentrated, such as the telephone industry, cable television and parts of broadcasting.

All of this is good news to the antitrust leadership on Capitol Hill and to U.S. District Court Judge Harold Greene, who is in charge of the Modified Final Judgment and is just about to go through his second triennial review of the divestiture of the Bell System.

Antitrust leaders on Capitol Hill, particularly, Sen. Howard Metzenbaum (D-Ohio), chairman of the Senate Antitrust Subcommittee, and Rep. Jack Brooks (D-Texas), chairman of the House Judiciary Committee, are old school, progressive liberals who have supported Greene and

(continued on page 37)

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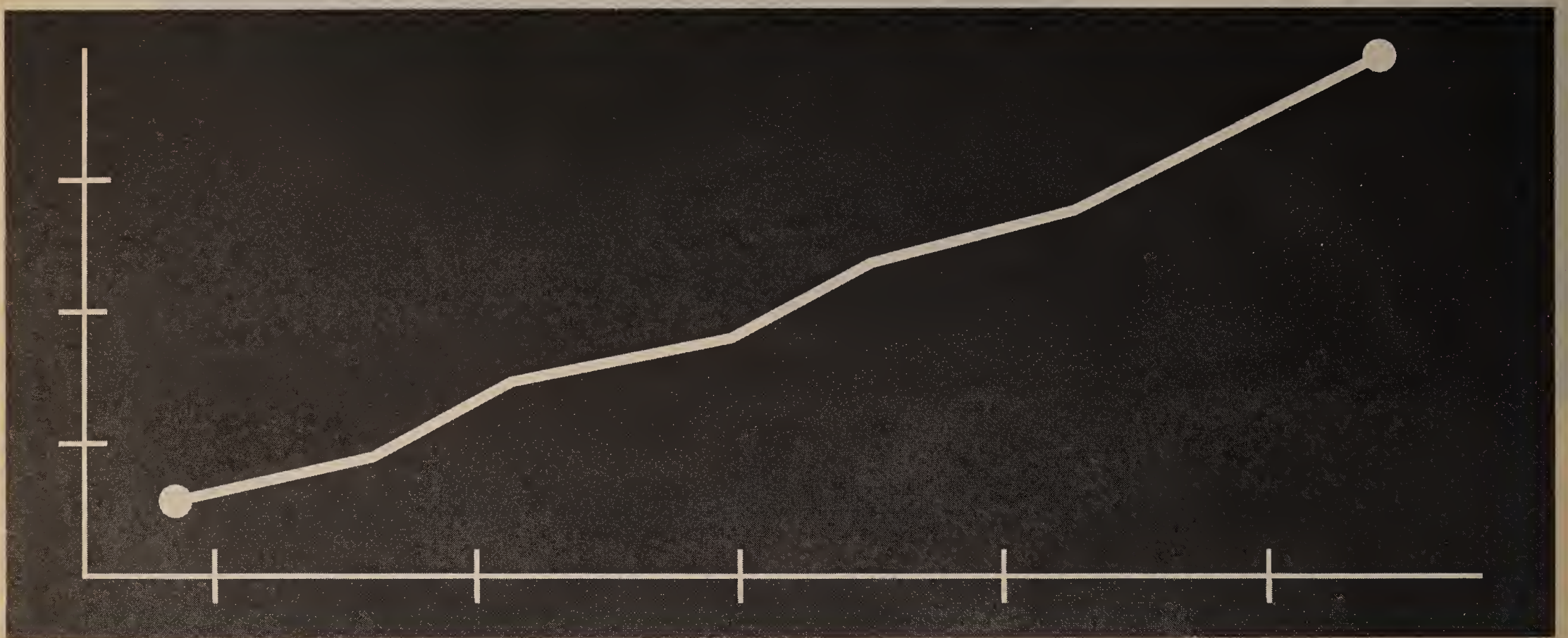
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Climbing the telecom ladder

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tor of billing and administration], whose full-time job is to work with AT&T on the structure and quality of the monthly bill, and to work with each of the subsidiaries to make sure they understand the billing system," Sherin says.

In addition, the corporate telecommunications staffers "monitor and control credit card billings and worry about fraud," he adds.

"These jobs didn't exist before," Sherin says. "We've built a group of about a dozen people just to manage the new relationship between us and AT&T."

Not every company is emphasizing outside vendor relationships, however. Many are stressing the value of people skills to help extend their own management of complex corporate voice and data networks.

According to Harvey Shrednick, vice-president of information services at Corning, Inc., a \$2.6 billion diversified manufacturer located in Corning, N.Y., the company's corporate telecommunications staff of 30 analysts, supervisors and managers now oversees a worldwide network function that links Corning-based companies with numerous subsidiaries. The department is aggressively seeking better relationships with internal customers.

"With one new subsidiary, for example, we've just set up a deal where we manage their telecommunications function. We call it insourcing," he says, which means helping to design, plan and manage an integrated network for both voice and data. People skills, he emphasizes, are required to smooth the way.

"We're training employees a lot more in the human relations factor," Shrednick continues. Among his agendas: self-managed work teams, more effective net integration and solutions that satisfy Corning customers.

"We let our telecom people administer themselves and allow them to go out and look at ways to improve customer service by bringing in new and more effective technologies," Shrednick says.

Increased responsibility

Corporations are also expecting more from communications managers. For example, to qualify for a top management job — such as vice-president of telecommunications, chief telecommunications officer, manager of telecommunications and even the higher levels such as CIO — candidates must cross-train and become actively involved in several technical disciplines. These include not only voice, data and video, but particularly LAN communications and net management. A candidate must also possess years of business experience.

"When I first came [to Corning], a telecom manager primarily had responsibility for voice," Shrednick says. "I expanded the role to bring in networks under the same individual."

"We brought in additional sources to focus on network management, elevated the importance of data and brought in professionals who could provide value as well as plan and execute," he says. "Now the telecom manager is not only looking at Corning-based companies, but getting involved in [the telecommunications management of] subsidiaries as well."

Many candidates for telecommunications jobs offer more than one college degree today, including an MBA, and have rotated throughout several business units to acquire further experience.

Generalists, with a background in several areas, are "in" at the top levels, according to Sherin. "A CIO, for example, has to be a generalist in the normal sense of the term." Ironically, though, "there's a greater need within our businesses for technical staff below the manager level."

Specialists, Sherin says, "are required to manage the LANs that didn't exist just a few years ago. These are new and very important positions and relatively difficult to fill because these people are in great demand."

An interesting quirk of the industry is that high-level managers most often come from the data communications and networking side rather than the voice side, says John Leong, director of networking and computing services at Carnegie-Mellon University in Pittsburgh.

"The majority of new offerings in the telecom world are in data communications — for example, Integrated Services Digital Network and Synchronous Optical Network," Leong explains.

"In the past," he says, "telecommunications was a very basic service element — generally equated with electricity, water and food service. But after divestiture, there were a lot of competitive offerings. This required a much more knowledgeable person [typically with a data communications background] to take advantage of the competition."

Of course, not every top communications manager has to come from the data side, Leong acknowledges. Bright telecommunications specialists could, theoretically, get a crack at a CIO slot. Yet this rarely, if ever, happens.

"Typically," Leong continues, "a corporation merges the less expensive [telecommunications] service into the more complicated [data]." The telecommunications department reports to DP, and DP reports to finance — and the data communications managers with the most business savvy rise to the top.

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New regulatory climate

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the breakup of AT&T from the beginning.

The upshot of this renewed antitrust activity is that the dominant firms in the communications industry should make sure they aren't in violation of the laws, and they should expect more rigorous governmental review of any planned mergers.

The NTIA

The NTIA celebrated its 12th birthday in March. A creature of

■ **The globalization of the mass media study.** Spawned in part by the merger of Time, Inc. and Warner Communications, Inc., and the acquisitions of U.S.-based mass media enterprises by foreign firms such as Sony Corp. of Japan and Pathe Communications Corp. of Italy, this study will examine where the electronic mass media industry is headed in the next 10 years. There is an a priori assumption that mass media conglomerates are becoming more global and that this trend and the concentration of mass media power and ownership will continue.

Obuchowski knows the communications industry and is aware of its major problems.



President Carter's government reorganization and downsizing in 1978, NTIA was made part of the Department of Commerce and quickly became known as the "Not Terribly Important Administration."

This characterization has never been far from the mark. In the past 12 years, the NTIA hasn't accomplished much. Indeed, critics say it hasn't accomplished anything. President Reagan's top aides at the Commerce Department recommended its abolition.

All of that was before past NTIA head, Alfred Sikes, was named FCC chairman. Sikes, aided and abetted by his many political friends on Capitol Hill, saved the NTIA because of his belief that it can play a valuable role in the formation of public policy for the communications industry.

Now the NTIA is being given a boost by its new boss, Janice Obuchowski, a lawyer with FCC and telephone industry experience. Obuchowski has the advantages of knowing the FCC chairman well, being able to work with him and the staff, and also being popular and effective both on Capitol Hill and in the White House.

Obuchowski has launched four major projects at the NTIA:

■ **The communications industry infrastructure study.** Obuchowski says she hopes to have this report ready by year end, with expected sequels. The objective of the study is to determine the current state of the industry in the U.S., to try to ascertain where it is headed and to determine if it is headed in the right direction.

The report, eagerly awaited on Capitol Hill and at the White House, will make policy recommendations on what the federal government can do to bring about its vision of the public network of the future and how the future public net should be regulated once it's established.

■ **A spectrum allocation study.** This will be a comprehensive policy review of the use and management of the radio frequency spectrum in the U.S. The NTIA said it plans to submit recommendations to the Bush administration and Congress on a wide range of spectrum management issues, including spectrum reallocation and the use of alternative methods of allocating and assigning frequencies — spectrum auctions, spectrum fees, spectrum lotteries and the like. A primary goal of this study is to en-

it all: Collectively, they will take a much needed macro view of today's communications industry. If she completes the studies and they withstand critical analysis, she may become the first NTIA head to promote effective and valuable public policy.

Although success isn't guaranteed, Obuchowski has increased her chances by recruiting some extremely effective and intelligent public servants. Among her advisers are Tom Sugrue and Bill Maher, both former senior staffers at the FCC. They were also the principal architects of the Computer III policy. Jim McConaughy, an economist who also served on the FCC staff with her, has recently joined NTIA, where he is working on the international competitiveness study.

As a Washington public policy expert, Obuchowski is aware that the NTIA lacks any real political or policy-making power. Unlike the FCC, it cannot tell the industry what to do, how to do it or when to do it. Some of her friends say they believe that she may even be headed back in the FCC's direction. After all, her predecessor at the NTIA is Chairman Sikes.

But Obuchowski says she is not looking that far ahead with her career. She said she is much more concerned with completing her current tasks at the NTIA and then going about the difficult task of selling her policy recommendations to Sikes, Sununu and senior political leaders on the Hill. That is what she must do if she wants to be successful.

Under the direction of Sikes,

The FCC is regaining the confidence of both politicians and industry leaders.



sure that U.S. technology and services stay competitive and ahead of foreign competition.

■ **An international trade competitiveness report.** This study is to be submitted to Congress as part of a congressional review of telecommunications equipment and services trade under the Omnibus Trade and Competitiveness Act of 1988. The objective here is to see whether U.S. communications companies are competitive with foreign firms and whether they have a willingness to do business multinationally. If U.S. firms have the desire and are competitive, then the NTIA said it plans to recommend government action to see that foreign markets are opened to U.S. competition.

With these four studies now well under way, Obuchowski has proved one thing: She knows the communications industry and is aware of its major problems. These four topics, in essence, say

the FCC has made significant progress in reestablishing its credibility after the Reagan years. This means that, slowly but surely, the FCC is regaining the confidence of both politicians and industry leaders.

The NTIA is also back in the game. Obuchowski has a vision of the future and is attempting to construct a road map telling everyone how to get there.

At both the Justice Department and the FTC, it is back to basic enforcement. This means that competition will be given a shot in the arm and the trend toward mega-mergers financed by junk bonds will slow.

All of this will put more power in the hands of the users. The opening of the communications infrastructure and the onset of increasing competition guarantee that the information age will result in consumer benefits and very little, if any, consumer exploitation. ▀

(continued from page 37)

Whatever the balance of power, though, rewards for top communications managers remain high — in keeping with the increasing complexity and visibility of their jobs.

According to one industry survey titled "The Chief Telecommunications Officer: 1990," by J. Robert Scott, a Boston-based executive search firm, salaries for top telecommunications slots among the largest U.S. companies in five industry sectors — financial services, technology, manufacturing, retail and transportation — averaged more than \$92,000 per year.

Positions garnering these salary levels were most often vice-president of telecommunications, director of MIS or director of telecommunications. In the Scott survey, nearly half the respondents said the top two telecommunications officers in their companies earned from \$50,000 to \$90,000 per year.

These positions, however, fell short of the much sought after vice-president of MIS or CIO slots — the top of the heap, in other words — which pay as much as \$120,000 to \$150,000 per year, according to survey respondents. The \$92,000 average, however, was stratospheres above the typical salaries of telecommunications staffers, which average about \$40,000 per year ("Net managers stay one step ahead of inflation," *NW*, Feb. 5).

Increasingly, corporations have evolved a pecking order reflecting the integration of telecommunications and networking into the information systems function.

"There's a continued trend toward having the senior telecommunications manager report to the senior CIO or VP of MIS," says Management Recruiter's Schoff. Before, the telecommunications department reported to administration; it was considered a utility. However, he insists that telecommunications is not subordinate to MIS, but equal to it.

Still, his observation accounts for the reported disparity in salaries. The pecking order — from lowly analyst to supervisor, then to manager of telecommunications to director or chief, and finally to vice-president of IS and CIO — also represents the career mountain any ambitious network manager must climb. "You'd have to become a VP of IS with a solid foundation of business skills and IS skills to get beyond a management job in telecom," Schoff says.

For those envisioning even higher goals, a slot as CIO might ultimately pave the way for management of information networks in global conglomerates. Hence the new buzzword — GIO, for global information officer — which has yet to become a firm reality. An alternate title, chief networking officer (CNO), may also be in the offing, according to

George Colony, president of Forrester Research, Inc., a high-tech marketing firm in Cambridge, Mass.

"We feel strongly that network managers will execute a coup," he says. "By the middle of this decade, they will be the primary leaders of technology in Fortune 1,000 companies. The emphasis will shift from the mainframe to the network. Managers with network experience will end up running the show."

Needed: switch-hitters

Corporations today seem leery of conflict. Rarely does a company pit a chief telecommunications officer against a chief data communications officer under the same roof, according to Carnegie-Mellon's Leong.

Instead, companies frequently create a new title, such as director of network operations or director of networking and communications, to designate someone in charge of both voice and data operations, as well as management of separate or consolidated networking organizations.

An example is Union Carbide Corp., an \$8.5 billion manufacturing concern located in Danbury, Conn.

According to Sam Pritchard, manager of telecommunications, Union Carbide integrated its voice and data private networks back in 1972. But two managers continued to oversee voice and data separately in two distinct organizations until Pritchard con-

solidated the responsibility and the organizations under a new more powerful job title — manager of network operations — four years ago.

"The person [in this top slot] had his title and responsibilities change while other functions below him remained the same," he says. "From a technical vantage point, we were able to do this because we put in a large T-1 network to support our private voice network; and subsequent to that, we gradually moved over the private data network to T-1." Today, the manager of network operations presides over both voice and data operations on the T-1 link.

Moreover, analysts and technical consultants at Union Carbide, many of whom previously specialized either in voice or data, now do both.

"There's a lot of cross-training and expertise residing in individuals in both areas," Pritchard says. Switch-hitters are in demand since the telecommunications department handles private branch exchange support, LAN application development and network planning functions, among many other services.

Many analysts and headhunters today agree that networking is changing so rapidly, few industries fully understand it. As networks evolve, however, certain networking titles appear destined to rise, while others are doomed to obsolescence.

Traffic engineering, for one, is out, or nearly so. "It's probably less in demand today given the fact that most networks are software-defined," Schoff says. An old-fashioned telecommunications manager who just phones up Ma Bell and asks for service is also a dinosaur. What's needed

"are people who are skilled in putting out bids to a select few vendors," he says.

On the up side, the hot areas of communications now include LAN administration, network development and network planning, according to industry specialists.

"There's more of a thrust toward LAN administration and networking titles, such as LAN administrator and designer," notes Nadine Rubin, president of Information Systems Search, Inc., an IS head-hunting firm based in New City, N.Y. LAN managers typically report to managers of telecommunications, she adds, although they are actually an extension of the data communications function.

In some organizations, network managers and developers are catching up to applications people in terms of clout and significance.

"Our network development piece is becoming more important," notes Corning's Shrednick. "The analysts in this area, as well as the manager and supervisor, are probably coming up to application systems analysts in terms of status and job title. Before they were considered of lesser importance."

One of the reasons for the change is that network development means dealing with the technical issues of vendor management, a new accent in many corporations.

At the bottom rungs of the corporate ladder, job titles appear somewhat stagnant. As organizations reduce middle management positions, supervisory jobs are being cut. So how do ambitious analysts get past the first few rungs of the corporate ladder? In many cases, they don't; they sim-

ply hang on for dear life.

"In brokerages, for example, people who start out by analyzing phone bills and move up to manage a whole PBX are moving up the ladder faster than those in upper-level management," says National Telecom Placement's Boyd. This creates a bottleneck.

"We're getting people moving up the ladder in title and salary who don't have a lot of responsibility," she says. Those with hands-on experience languish. "They become indispensable to upper-level management be-

cause [the managers] don't have hands-on experience."

Boyd adds that it is not unusual for ambitious senior analysts and assistant vice-presidents to overestimate their own worth. At one financial services company, for example, an assistant vice-president of telecommunications with a liberal arts background and some on-the-job training was looking for \$55,000 to \$60,000 in salary as director of telecommunications in a major corporation.

"He had no more knowledge than a senior telecommunications analyst has," Boyd says. "Some know how to read a phone bill and want to oversee an entire department that is international in scope. But a VP of telecommunications really requires experience in all aspects of telecom."

Because of the management bottleneck, corporations are trying to satisfy stalled telecommunications specialists with new solutions. One of them, increasingly popular, is to make management and technical career ladders separate but equally rewarding.

In many instances, the management ladder is quite shallow while the technical ladder is so extensive that even senior people can spend their entire careers on it, earning as much or more than the managers, according to Trav Waltrip, vice-president of telecommunications for The Travelers Corp. in Hartford, Conn.

"At The Travelers, for example, the corporation has a chief information officer, and all data processing and telecommunications — including voice and data networking — report to this post," Waltrip says. "In this context, careers within telecom are careers within the different disciplines we do."

"All of us are on technical ladders," he adds. "Most engineers want to be on the technical track because there are more positions."

themselves, even if the telecommunications vs. data corporate wars remain unresolved.

What counts is to find an organization that places a premium on the telecommunications function, according to Information Systems Search's Rubin. "How respected and visible is telecom? How high up in the organization does telecom go?"

Prospective employees should then decide whether they want to pursue a purely technical track or the management ladder. If management, then "get a job with supervisory and budgetary responsibilities," she says.

"People out there are becoming more aware of who utilizes telecom as a business tool and who doesn't," Rubin adds. Obviously, those managers who want to claw their way to the top must stick with the companies that use telecommunications as a strategic tool. These managers should offer the kinds of skills — and broad exposure to the entire telecommunications spectrum — that help companies do business.

"If you look at telecom as separate from business, you're going to remain separate," Rubin says. "It's all attitude." ■

Daniel Briere
President
TeleChoice, Inc.
Manchester, Conn.

“Engineers want to be on the technical track because there are more positions.”



Increasingly, corporations have evolved a pecking order.



Letters

continued from page 25

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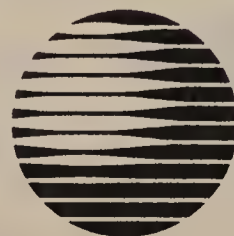
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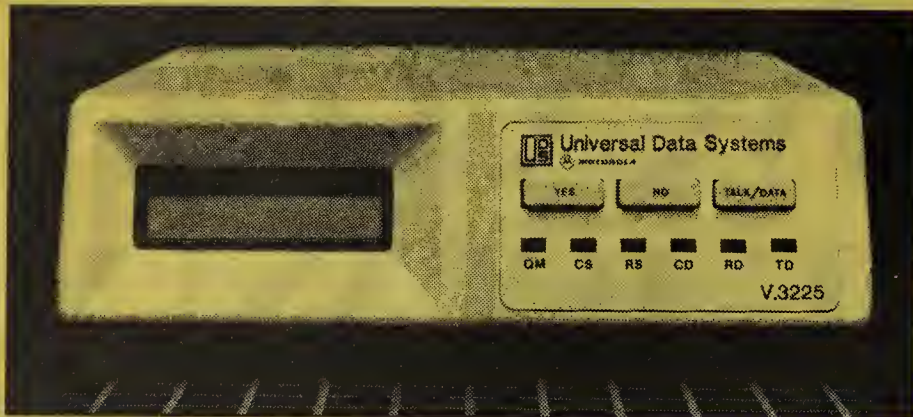
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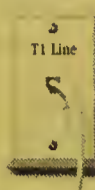
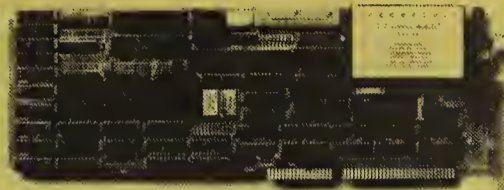
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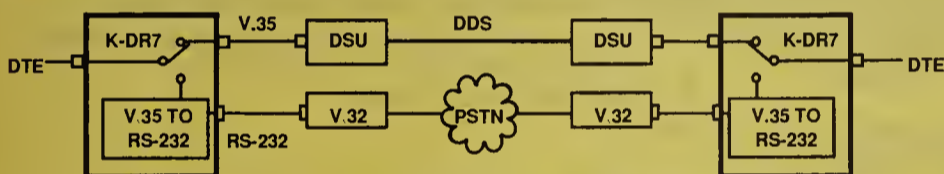
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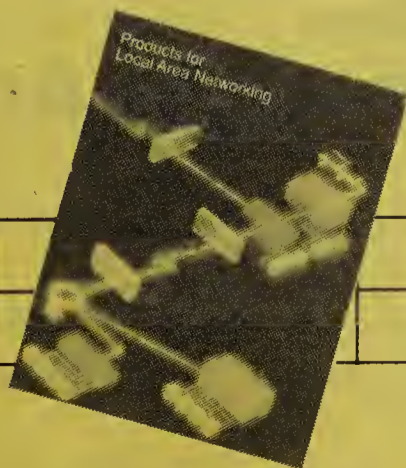
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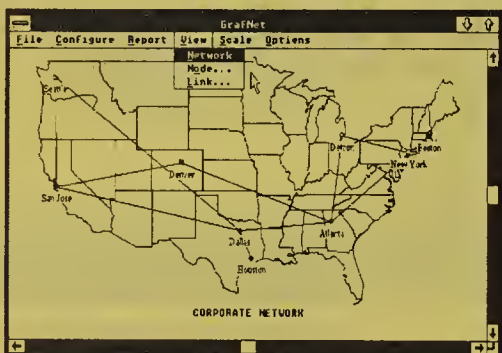
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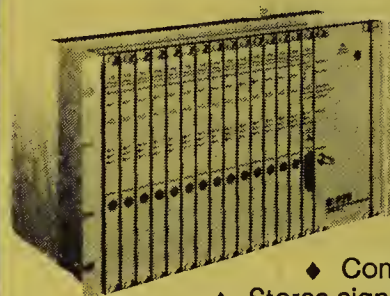
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September at a glance:

Sept. 3 has a special feature titled Trends Reshaping Networks: Multimedia Integration.

Sept. 10 will receive bonus distribution at NetWorld Dallas and has a LAN Test Series report on LAN Analyzer Performance Issues.

Sept. 17 features a telecom services buyer's guide with a comparison of carrier service organizations.

Sept. 24, the TCA show issue, will carry the results of the Network World 5th Annual Budget Survey - a topic that's sure to be the talk of network executives.

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Space and copy closing for next updated issue is August 27. Listing begins in September 10 issue and runs through the March 11, 1991 issue.

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Network World Third Quarter 1990 Editorial Features

August 13

Telecom Services Buyer's Guide:
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August 27

Telecom Buyer's Guide: Voice Messaging Systems
Bonus: Harvey Study Issue

September 3

Trends Reshaping Networks: Evolving Standards

September 10

Network World/LanQuest LAN Test Series:
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NETWORK WORLD

The Newsweekly of User Networking Strategies

Volume 7, Number 18

An International Data Group Publication

April 30, 1990

U.S. to study Soderblom token patent

By Laura DiDio
Senior Editor

WASHINGTON, D.C. — In a move that could spell trouble for Olof Soderblom's token-passing patent and monetary relief to his 50 licensees, the U.S. Patent and Trademark Office has agreed to reexamine the validity of Soderblom's patent.

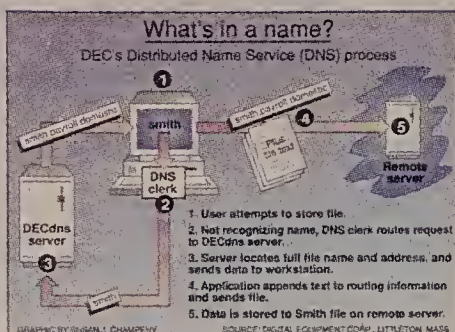
To its 1 1/2 page decision, the Patent Office stated that the reexamination request from an anonymous vendor was granted in view of earlier patents issued to four engineers — including two from AT&T Bell Laboratories — before Soderblom was granted his patent in 1981.

"A substantial new question of patentability affecting Claims 25 to 33 of U.S. Patent No. 4,493,948 to Soderblom is raised by the request," the Patent Office statement said.

The 10 claims in question deal with open and closed data transmission loop schemes and are central to the issue of whether Soderblom's existing patent is applicable to today's token-ring and Fiber Distributed Data Interface local-area network technologies.

Invalidation of the patent or amending even portions of the patent could effectively render null and void the current license.

(continued on page 62)



DEC describes benefits of X.500 directory services

X.500 will extend DNS offering to incorporate non-DEC devices in DECnet Phase V directories.

Later this year, Digital Equipment Corp. is expected to announce DECnet Phase V, a major revision of its network software that will support the full suite of Open Systems Interconnection protocols.

According to Jane Brewer, DEC's product marketing manager for enterprise networking within DEC's Telecommunications and Networks Organization, one key component of that announcement will be

support for the X.500 directory services standard, which promises to give network administrators greater control over the hardware and software elements in their networks.

In an interview with *Network World* Assistant Managing Editor Charles Bruno, Brewer described the full potential of X.500 directory services and laid out DEC's strategy to support the technology within DECnet Phase V.

(continued on page 59)

Microsoft to market LAN Manager direct

Software giant to sell NOS to Compaq resellers to stabilize LAN Manager camp, jump start sales.

By Laura DiDio
Senior Editor

REDMOND, Wash. — In an attempt to boost lagging sales of its LAN Manager network operating system, Microsoft Corp. last week announced it will sell a version of the product directly to select Compaq Computer Corp. value-added resellers.

Microsoft's decision to put its marketing muscle directly behind LAN Manager is viewed as crucial if the product is to compete successfully with Novell, Inc.'s NetWare, which commands 60% of the network operating system market today. LAN Manager has only been available through OEMs to date.

"By selling its own version of LAN Manager, Microsoft is giving users freedom of choice," said Craig Burton, executive publisher of the *Clarke Burton Report*, a monthly research magazine. "Users will no longer be constrained to buying versions of the product that only work with a particular OEM's hardware. This will help accelerate the acceptance of LAN Manager."

Jonathan Yarmis, vice-president of the personal computer service at Gartner Group, Inc. in Stamford, Conn., agreed. "The

move solidifies and stabilizes the LAN Manager camp and will spur application development."

"Microsoft and its OEMs have to present a unified front, especially in light of Novell's merger" (continued on page 6)

Fax facts	
Average:	
Number of users per fax machine	10 to 50
Number of pages transmitted per day	15
Cost per page of transmission	35 cents
Cost per sheet of paper	5 cents
Cost of a fax machine	\$1,500

Net execs try to tame fax monster

By Tom Smith
New Products Editor

The explosive growth of facsimile machines has created a costly monster of which few companies are aware, let alone able to control.

Most large companies don't even know how many fax machines they have or how much they are spending on dial-up fax transmissions.

"It's like trying to manage envelopes or pieces of paper," said Bob Craig, vice president of international network planning for The Chase Manhattan Bank, N.A. in New York. "People don't think it's worth the cost of managing it."

Yet the costs can be staggering. Annual transmission costs can be in the tens of millions of

(continued on page 8)

NETLINE

AT&T TRIDOM plans to trial a pan-European VSAT network with two users. Page 2.

A TARIFF 15 USER is the loser in a heated battle between MCI and AT&T. Page 2.

VENDORS AIMING for FDDI interoperability form a testing consortium. Page 2.

3COM ELECTS Benhamou to

the post of president. Page 4.

AMEX AWARDS MCI with a service contract that could be worth up to \$100m. Page 4.

US SPRINT EXTENDS VPN services into international markets. Page 4.

PRIVATIZING TELECOM in Eastern Europe is a question of capital. Page 43.

FEATURE

Telecom privatization will aid int'l users

By Norman Lerner
Special to Network World

Most countries — industrialized, developing, capitalist and socialist — are at some stage of restructuring their telecommunications systems in order to accommodate and take advantage of the great political and economic changes now sweeping the globe.

In many places, this restructuring is taking the form of privatization of formerly nationalized telecommunications sys-

tems. This important trend raises major questions for multinational users of telecommunications services, including: Where is this happening and why? How will it affect the way we do business? And what will be the long- and short-term effects on telecommunications services to and from these countries?

This article examines the trend toward privatization in

(continued on page 38)

The results are in and *Network World* is the clear leader. The 1990 Wall Street Journal/ICA Member Study is conducted among members of the prestigious International Communications Association (ICA), an organization whose representatives purchase \$16 billion of information technology products and services each year.

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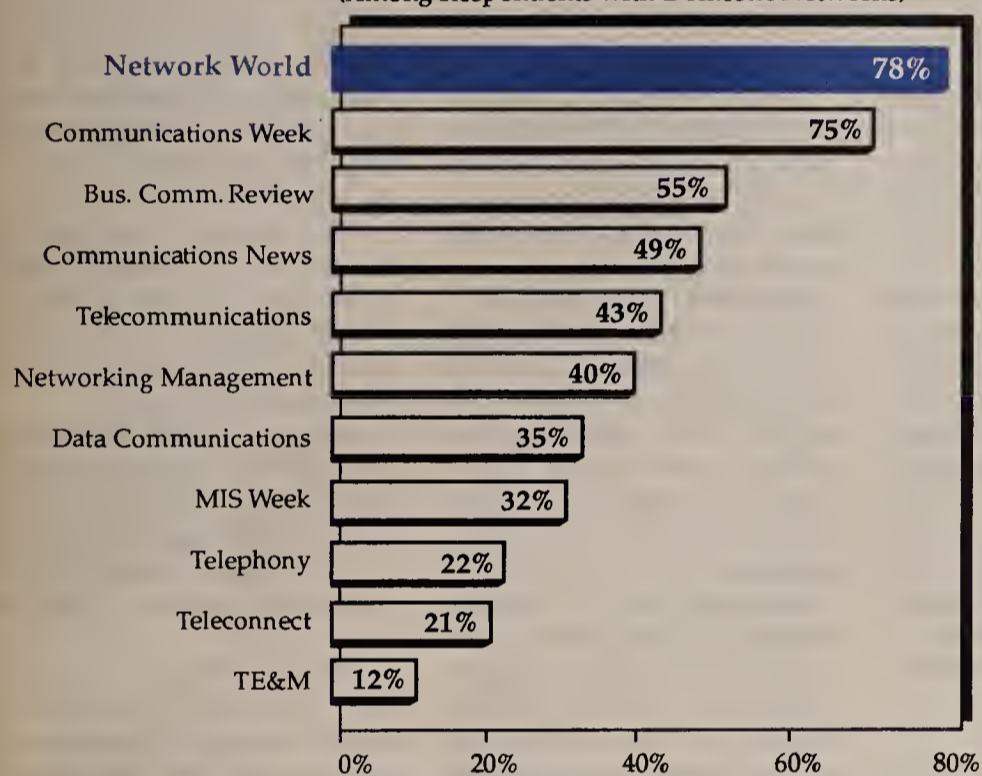
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Domestic Regular Readership

(Among Respondents with Domestic Networks)

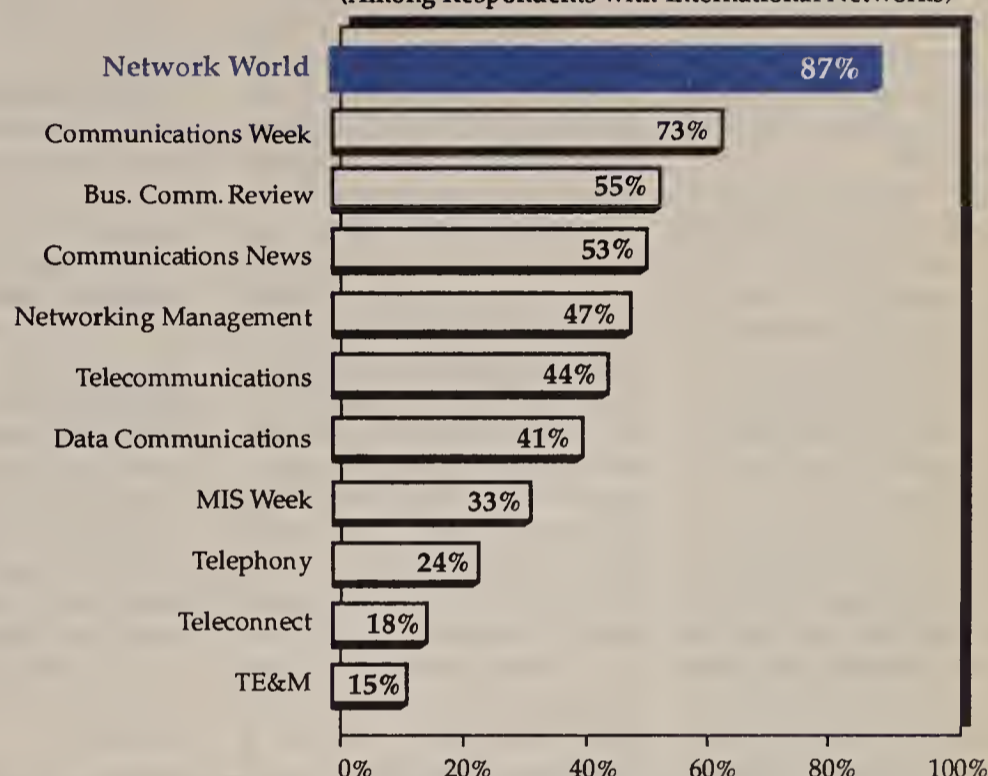


Base: 336 Respondents

Regular readership is at least three out of four issues.

International Regular Readership

(Among Respondents with International Networks)

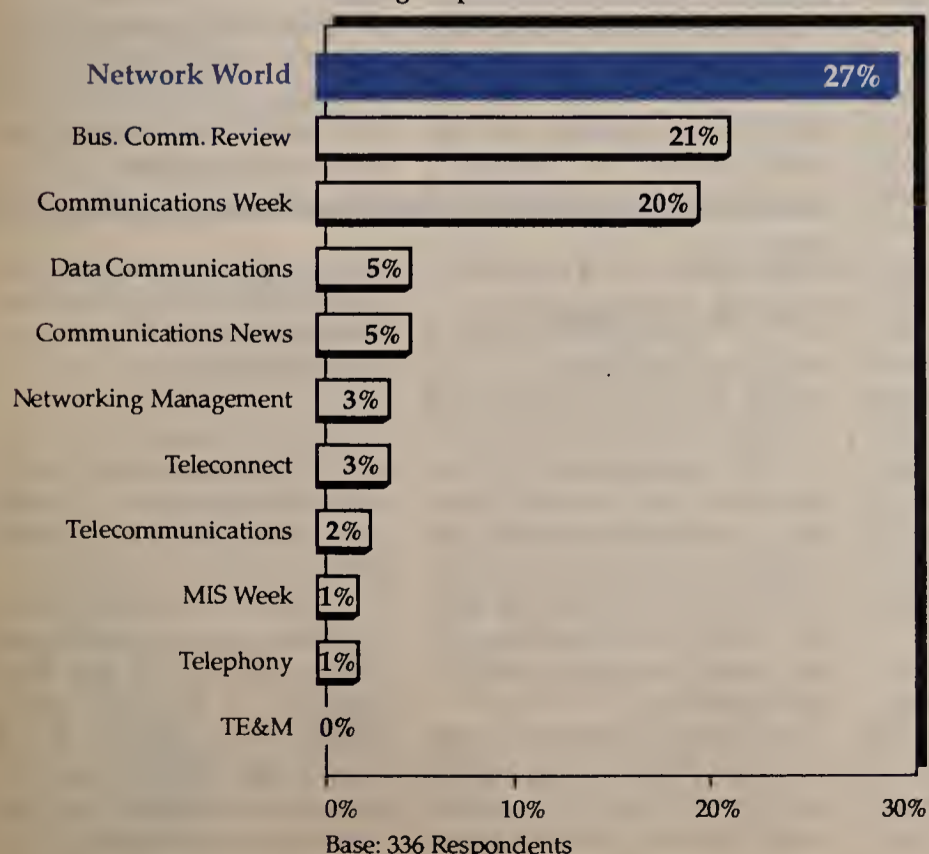


Base: 165 Respondents

Regular readership is at least three out of four issues.

Domestic Most Important/Useful

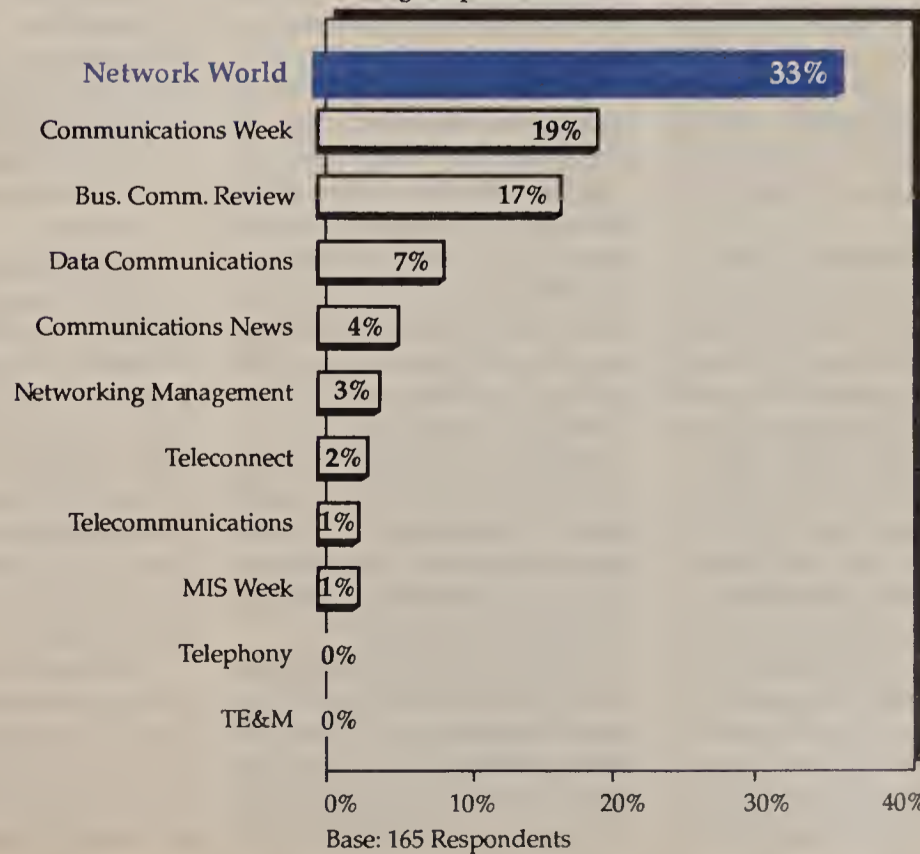
(Among Respondents with Domestic Networks)



Base: 336 Respondents

International Most Important/Useful

(Among Respondents with International Networks)



Base: 165 Respondents

N.Y. blackout cripples nets

continued from page 1

when eight Comdisco customers sought the firm's help.

"We've been working 24 hours, shuffling people back and forth, and blowing computer parts and phones," said Virgil Carden, director of communications network services at Dow Jones. "It's been a terrible week."

The Federal Reserve Bank was forced to shut down its FedWire electronic funds transfer network for about three hours Thursday morning after backup diesel generators crashed in its headquarters building, which was without power for nearly a week.

FedWire, an essential component of the global commerce system, handles more than half a trillion dollars daily in electronic funds transfers. Because of the electrical and generator outages, engineers were forced to shut down the network while they moved operations to a backup data center, erected in 1987 in Pearl River, N.Y.

Citibank had to delay funds transfers on Wednesday because a backup diesel generator failed in a data center on 111 Wall St., according to a spokeswoman for the bank. A SunGard spokeswoman said Citibank was forced to move into one of the disaster recovery firm's backup data centers in Philadelphia.

Officials with the Federal Reserve Bank and the New York Automated Clearinghouse, which runs two funds transfer nets in the city, said Citibank was unable to complete its funds transfers on Wednesday until after 10 p.m.,

well after the regular late afternoon and early evening closing times.

Both the Federal Reserve Bank and the New York Automated Clearinghouse kept their funds transfer services open far past scheduled closing times that Wednesday and other days during the week to accommodate financial institutions such as Citibank that were struggling to cope with the blackout. John Lee, president of the New York Clearinghouse Association, said 25 of the 140 banks that use the organization's Clearing House Interbank Payments System were affected by the outage.

Dow Jones had to halt its widely followed Dow Jones News/Retrieval service for 45 minutes at the height of the outage on Monday and did not print portions of *The Wall Street Journal* because of problems with its backup diesel generators, a spokesman said.

He added that distribution of the company's Telerate market data feed to Manhattan was halted Monday afternoon because power was cut off to a multiplexer in the World Trade Center that supports local distribution.

But the Telerate failure had little effect on traders because all trading stopped Monday afternoon at six New York exchanges, including the American Stock Exchange and the New York Mercantile Exchange, which had to halt trading in oil futures contracts at a time when volumes were high because of the Iraqi crisis. Other firms affected include Merrill Lynch & Co., Inc., which was forced to use backup generators at its world headquarters, and Manufacturers Hanover Trust Corp., which had to cut over a

backup data center in New Jersey.

While users with backup generators and data centers had some problems, they clearly fared better than others.

Fundamental Brokers, Inc. was forced to halt all business operations for 1½ days because it had no contingency plan for its interdealer broker net, which supports trading of government bonds. The network consists of multiple 4.8K bit/sec multidrop lines running from the firm's host computer here to terminals and computers in its customer's offices, as well as private voice links.

While backup battery systems kept its computers from crashing and losing data, within two hours of the outage, the company had to stop conducting business because its batteries had run out of juice. "We were totally shut down," said Joseph Manno, data communications manager at Fundamental Brokers. "We couldn't trade or communicate with any of our clients."

Manno said Fundamental Brokers was only able to come back on-line Wednesday morning because an electrician found a spare generator in Maryland and had it shipped to the firm.

All told, three of five interdealer broker networks in the city crashed because of the outage, according to Thomas Festa, communications manager at Liberty Brokerage, Inc., an interdealer broker that stayed in service. Festa said his company narrowly escaped the same fate since it too has no backup power generation system or disaster recovery site and is located on a street where all of the other buildings lost power. ■

U.K. firm to use SNMP feature

continued from page 2

the process of building new LANs, DECnets and Systems Network Architecture networks, said Chris Yates, corporate telecommunications manager for the utility ("U.K. power company builds giant E-1 net," NW, June 25).

AT&T Paradyne, which sells the Integrator in the U.K., said a contract for an Integrator sale to National Power has not yet been signed, but Yates said his company expects to take delivery of the product next month.

In addition to managing LANs and DECnets from a central console, the Integrator will also enable National Power to monitor its T-1 network via a link to the Timeplex, Inc. Time/View 2000 net management system and its SNA network through AT&T's SNA Management Application (SMA), which supports both IBM's NetView and Systems Center, Inc.'s Net/Master.

On the voice side, the Integrator will support a private branch exchange management system from Orbitel, which manages National Power's GEC Plessey Telecommunications PBXs.

Last week, Yates completed a 10-day fact-finding mission in the U.S., during which he visited numerous vendors in search of networking tools, including LAN products from vendors such as Codenoll Technology Corp., Chipcom Corp. and SynOptics Communications, Inc.

He said his company has yet to choose which LAN products it will use but said they must support an SNMP agent function capable of working with the software that will let the Integrator function as an SNMP manager. Initially, the Integrator will use SNMP only to collect error messages from remote LANs, but Yates said eventually it will also be able to control devices on the LAN to correct problems.

AT&T's SNMP offering would let the Integrator support alarms and alerts from a bevy of devices and management systems, such as SynOptics' LattisNet Network Management System, that already support SNMP. Depending

on the sophistication of the attached management system, it could allow Integrator console operators to gather LAN utilization data, set performance thresholds on the LAN and configure remote LAN devices.

National Power also intends to use the SNMP capability to ship management data from its DECnet networks to the Integrator.

The company plans to use DECnets for some local office applications and for process control applications that monitor and control more than 40 power plants. It will use an SNA net to support business applications such as accounting and personnel.

"We're going to run TCP/IP as well as DECnet over the same DECnet network," Yates said. Therefore, National Power can use SNMP to manage its multiprotocol routers and ship some management data to the Integrator.

DEC tools will support logical network management of the DECnets, but the Integrator and SNMP will be used for physical net management, including data gathering on error rates and response times.

"You don't need that data all the time at the network management center, but you do need to be able to take samples and you need to be able to home in on suspect areas," Yates said.

Management data on the SNA network will be shipped to the Integrator using AT&T's SMA. As of last week, Yates said his company had not decided which of those management systems it will use on its SNA net.

Although Yates praised AT&T's net management products and strategy, he was not so happy about the Integrator's price. He said the price tag for the system — including about six Sun Microsystems, Inc. workstations and the 4B minicomputer on which it will run — is about \$1.8 million. Costs for training and custom application software could come to more than that, he said.

"If you want the benefits out of it, then you're going to have to pay what's really a launch price," Yates said. "I don't like that, but I haven't got any option." ■

Microsoft backs latest SQL Server

continued from page 2

no one, including Microsoft, seemed prepared to fill.

"That is all being negated by what Microsoft is doing now," said Perry Mizota, director of marketing for Sybase, Inc., the company that created the SQL Server DBMS. "We are extremely confident that someone is taking ownership of the OS/2 SQL Server and that the product is going to be a big success."

One key Microsoft program is the long-rumored SQL Business Partner Program under which data base companies license and bundle SQL Server with their front-end data base applications. Companies that have already signed up include Ashton-Tate, Blyth Software, Inc., DataEase International, Inc., Revelation Technologies, Inc. and Sybase.

Progress has also been made with regard to NetWare compatibility and front-end support.

"We now have more than 25 front ends to SQL Server shipping, and some of the big names like Paradox and DataEase are scheduled for release in September," said Dwayne Walker, senior SQL Server product manager at Microsoft. He said Microsoft has also worked closely with Novell since last April to ensure the best possible interface between NetWare and SQL Server.

To further encourage development efforts, Microsoft is now offering an entry-level, five-user version of SQL Server for \$995. Also, a new configuration option enables users to set up SQL Server in a stand-alone OS/2 workstation so they can develop applications for it without having to worry about affecting a production network environment.

Release 1.1 can also be used with Microsoft's BASIC Professional Development System. Thus SQL Server client/server applications can now be written in the BASIC language.

The product's system administration facility has been improved to make better use of network resources. For example, administrators in a LAN Manager environment who add SQL Server can, by pointing and clicking with

a mouse, copy existing user identification information from LAN Manager into the data base. In addition, the system administration screens will now run under Microsoft Windows 3.0.

On the client side, Microsoft has unbundled the Named Pipes client/server communications software from the DB-Library application program interface and reduced the size of the latter from 80K to 40K bytes so that it runs faster and takes up less workstation memory.

Microsoft separated the DB-Library and Named Pipes software in order to create a protocol-independent architecture. While Named Pipes is the only protocol module currently available, users will eventually be able to swap different client/server protocols in and out of their workstations in order to access SQL Server data bases running on VAX/VMS and Unix systems.

With the new release, Microsoft has switched from Ashton-Tate's per-server pricing of \$2,495 to user-based pricing. A five-user license costs \$995, and more users can be added in increments of 10 for \$995. ■

HP to pitch products

continued from page 6

nounce products at Interex but declined to provide details.

"This announcement will fit into their open systems direction," said Michael Goulde, an analyst with the Open System Advisor, a consulting firm in Boston. "But I don't think the products being announced will be revolutionary."

HP's strategy falls in line with that of other minicomputer vendors, such as Digital Equipment Corp., that are also trying to position their minicomputers as LAN

servers, said Duncan Hare, program director for global network strategies with the Meta Group, a consulting firm in Westport, Conn.

However, he said the strategy may be faulty since today's high-end microcomputers and those under development can rival the power of minicomputers.

"This is the minicomputer guys' last gasp to try to become servers before they get really stamped on by [Intel Corp. 80486-] and 586-based machines," Hare said. "I don't see how Hewlett-Packard and low-end minis in general can survive the onslaught from below." ■

IBM plans Sept. unveilings

continued from page 1

cal interface for NetView will be based on OS/2 and will be compatible with IBM's Presentation Manager.

That is in contrast with the DOS-based NetCenter graphical interface that IBM acquired last year from US West Network Systems, Inc., he said.

Simultaneous control

The multitasking capability of OS/2 will enable the new graphical interface to support more advanced applications, such as simultaneous control over multiple management systems.

OS/2 also offers far more memory than DOS, and that can be used to run increasingly powerful applications developed over time.

In addition, the product's Presentation Manager interface is said to be easier to use than NetCenter's proprietary interface and will be compatible with IBM's Systems Application Architecture Common User Access standard.

Many users considered NetCenter merely a stopgap product from IBM and were holding out for IBM's own graphical interface to NetView, which was widely known to be in the works.

"If you knew that NetCenter was just an in-between product, why take the time to install it?" asked one user who requested anonymity. "If you know they're coming out with their own, you know where the bucks are going."

The graphical interface will be linked to NetView via a new LU 6.2 application program interface, which has also been expected for some time. LU 6.2 support is an alternative to the current method that most IBM and non-IBM products use to ship data to and from NetView, which is a Systems Services Control Point (SSCP)-to-physical unit session.

LU 6.2 benefits

IBM and analysts agree that SSCP-to-physical unit communications are much slower than LU 6.2 sessions, which can support two-way communications and larger blocks of data at any one time.

LU 6.2 has also become a de facto industry standard that is much easier for most vendors to work with when developing applications that attach non-IBM management systems to NetView.

Since LU 6.2 is designed for communications between applications — as opposed to between a terminal and a host — it is well suited for net management applications that require a conversational type of information exchange.

LU 6.2 support would make it easier to develop applications that trigger automatic responses to predictable network conditions ("IBM execs open up on net

management issues," *NW*, July 30).

Gartner Group's Boyle said that within SNA networks, LU 6.2 will also support new applications that off-load some net management tasks from NetView and reduce the number of messages that reach the NetView console.

For example, a token-ring net linked to a front-end processor could have hundreds of devices attached to it that are considered physical units in SNA terms.

Today, if there is a break on the LAN, each of the physical units reports the event to NetView via its SSCP-to-physical unit session.

"If you knew that NetCenter was just an in-between product, why take the time to install it?" asked one user who requested anonymity.

▲▲▲

"That's going to flood the network," Boyle said. "And it's flooding it at the worst possible time."

If LU 6.2 replaced the SSCP-to-physical unit session as the preferred way to ship management data to NetView, each of the physical units on the LAN could report the outage to a net management application on the LAN, he said. That application would filter the messages and report only one error message to NetView instead of hundreds.

Outside the net management arena, analysts also expect IBM's IMS/DC to be able to use LU 6.2. IMS/DC is an MVS transaction processing monitor that supports the IMS data base system.

Today, the only mainframe subsystem that supports LU 6.2 is CICS, said Joe Mohen, vice-president of Teleprocessing Connection, Inc., a consultancy in Garden City, N.Y.

"IBM's selling [LU 6.2] everywhere else, and without its support on IMS, those users are stranded," Mohen said.

CEO tries to keep morale up

continued from page 6

company's new Invoice Processing System has been implemented only for small business and residential customers so far but added that market testing is under way for processing bills for midsize and large businesses.

Although Esrey attempted to paint a cheerful picture for employees, some analysts were skeptical. Charles Nichols, vice-president at Prudential-Bache Securities, Inc. in Boston, said the

IBM will also beef up its LAN management capabilities with a product that gives users control of remote LANs from a central site.

The OS/2-based product is expected to be separate from but compatible with NetView, meaning it can be used in either a stand-alone mode or accessed via a NetView console.

IBM's current LAN Manager product can ship alerts from LANs to NetView but does not give the NetView console operator the ability to do problem determination or to remotely control the LAN. That must be handled on-site.

With the new LAN management product, users will be able to manage remote LANs as if they were using a workstation attached to the LAN. And the product will be supported under the new graphical interface, Boyle said.

Subsystem support

Another announcement expected next month involves expanded support for IBM's OSI/Communications Subsystem, Mohen said.

The subsystem is used to give users on OSI nets access to applications on IBM hosts and vice versa.

Today, the subsystem supports connections to OSI applications solely through X.25 links. That will be expanded with support for the 3172 Interconnect Controller, which is used to attach token ring, Ethernet or Manufacturing Automation Protocol 3.0 networks to IBM mainframe channels, Mohen said.

That support would allow users to communicate with OSI applications running on computers attached to any of those types of LANs.

Mohen said IBM will also offer an X.400-based E-mail gateway that works under the OSI/Communications Subsystem.

Today, the subsystem supports only a File Transfer, Access and Management (FTAM) application along with a subset of an X.500 directory service. The X.400 gateway would enable users of proprietary IBM E-mail systems to exchange E-mail with users of other X.400-based E-mail systems. ▮

letter was more of a pep rally device than a true assessment of the company's future.

"They're not out of the woods yet," Nichols said. Although the carrier's increased traffic levels in July were encouraging, he said he thinks the firm will have to continue its momentum through the summer, which is traditionally a slow period for companies.

Esrey admitted in his letter that August is typically a slow month for US Sprint. "We'll have to push even harder if we hope to develop a summertime growth trend here," he said. ▮

NetWare users to upgrade

continued from page 1

the processing of requests and slowing response times for users.

"NetWare 2.1X was designed in 1982 to handle 100 users comfortably on a single file server," said Michael Pierce, director of Novell's systems engineering division. "That's still true, but FSP problems occur when users try to overtax the NetWare 286 server by adding multiple printers, [Value-Added Processes], network interfaces and 1G- or 2G-byte disk storage subsystems."

On an 80286 server, NetWare can support 10 FSPs in a single 64K-byte block of server memory. That limits the number of requests that can be simultaneously processed by the server.

When a client workstation requests data, issues a print command for a file or accesses an application, an FSP receives the request and, if memory is available, it performs the task.

However, if other FSPs are using the allotted 64K bytes of memory, the request must be put into a buffer queue. Consequently, network processing is dramatically slowed or the file server can lock up altogether.

"Obviously, if you have 20 users on the network making memory-intensive requests at the same time and you have only one or two FSPs available, the server can only process a limited number of requests and everyone else has to wait," Pierce said. "In a worst case scenario, the server will overload and users will get a time-out error message."

According to Tom Glover, technical director at 900 VIP Help, Inc., which runs a 24-hour

telephone hot line for NetWare service and support, "What's happening is that as users attempt to increase the performance of their NetWare 286-based file servers, they run out of FSPs."

Dave Prendergrast, director of corporate research with U.S. Cellular Corp., a cellular phone carrier in Chicago, had never heard of FSPs until last year, when the company attempted to improve net response time on its NetWare 2.15 file server by adding accelerated device drivers.

"We plugged the four accelerated software drivers for NetWare into the server and instead of seeing improved network response time, it degraded dramatically," Prendergrast said.

The company then checked its FSP allocation.

"We realized that before adding the accelerated drivers to the server, we had five FSPs. Once we added them, we were down to just one, which meant that the requests were backing up and we had big processing delays," Prendergrast said. Consequently, the user decided against the new software drivers until it could install NetWare 386. NetWare 386 doesn't suffer from an FSP shortage since the operating system has been totally redesigned to support memory allocations of as much as 16M bytes for FSPs and other functions. In fact, NetWare 386 servers support 256 times more memory than the older versions, which supported 64K bytes, Pierce said.

He said that in response to the FSP problem, the firm is "investigating the possibility of overcoming the FSP limitations in future releases of NetWare 286 with an upgrade or patch." ▮

Patent Office sticks by ruling

continued from page 6

June ("Soderblom suffers patent setbacks in the U.S., U.K.," *NW*, June 25).

Soderblom's response was a 34-item rebuttal, which he filed in mid-July. It took the Patent Office only six days to hand down its latest decision reaffirming that Bell Labs engineers were the first inventors of the closed-loop token-passing scheme.

Token-ring vendors applauded the Patent Office's latest decision.

One licensee who also asked not to be identified said, "We're very encouraged by the Patent Office's recent actions. We've already got our attorneys looking into ways to break our contract once the decision is final."

Although the tide now seems to be turning against him, the saga of Soderblom's token-passing patent is far from over. Soderblom has several appeals options open to him that could take a year or more to resolve.

Should the Patent Office disal-

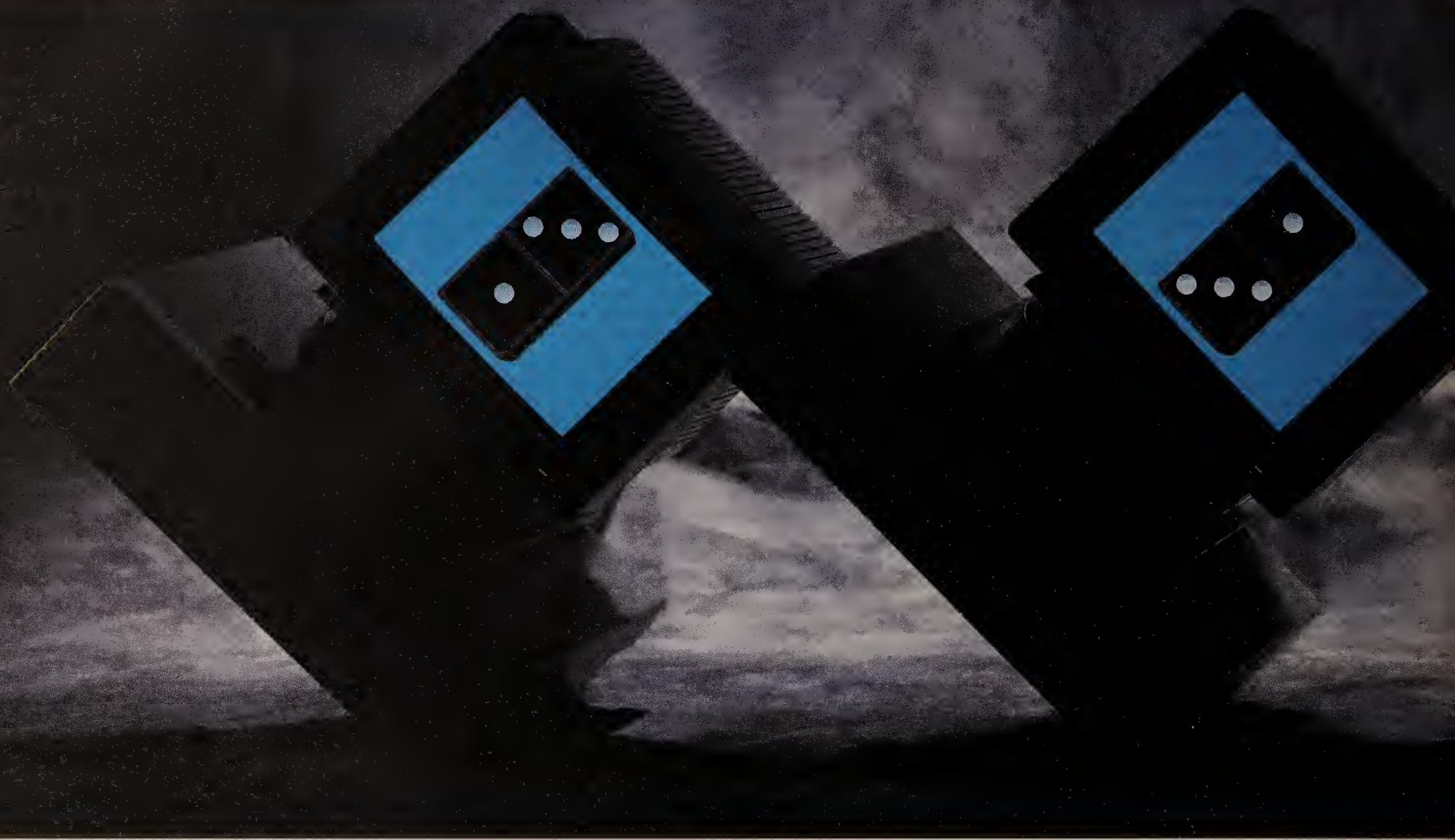
low Soderblom's forthcoming written rebuttal, he can appeal the decision to the Patent Office's Internal Board of Patent Appeal and Interferences, file a civil action in federal district court to direct the commissioner to issue the patent, or file an appeal to the court of appeals for the federal court.

"It's definitely not over," said Ed Murray, director of North American operations for Madge Networks, Ltd.

"It's the third action in a row that's gone against Soderblom. These actions confirm our decision that his patent is not applicable to today's token-ring technology," he added.

Arnold, White & Durkee's Harding agreed. "The fat lady hasn't sung yet since the Patent Office didn't kill all of Soderblom's claims," he said. "But the patent examiner made it clear that Soderblom didn't invent the closed-loop token-ring scheme, which is the basis for most of today's token-ring technology, and that's the key issue that enabled Madge Networks to prevail in its U.K. court decision in June." ▮

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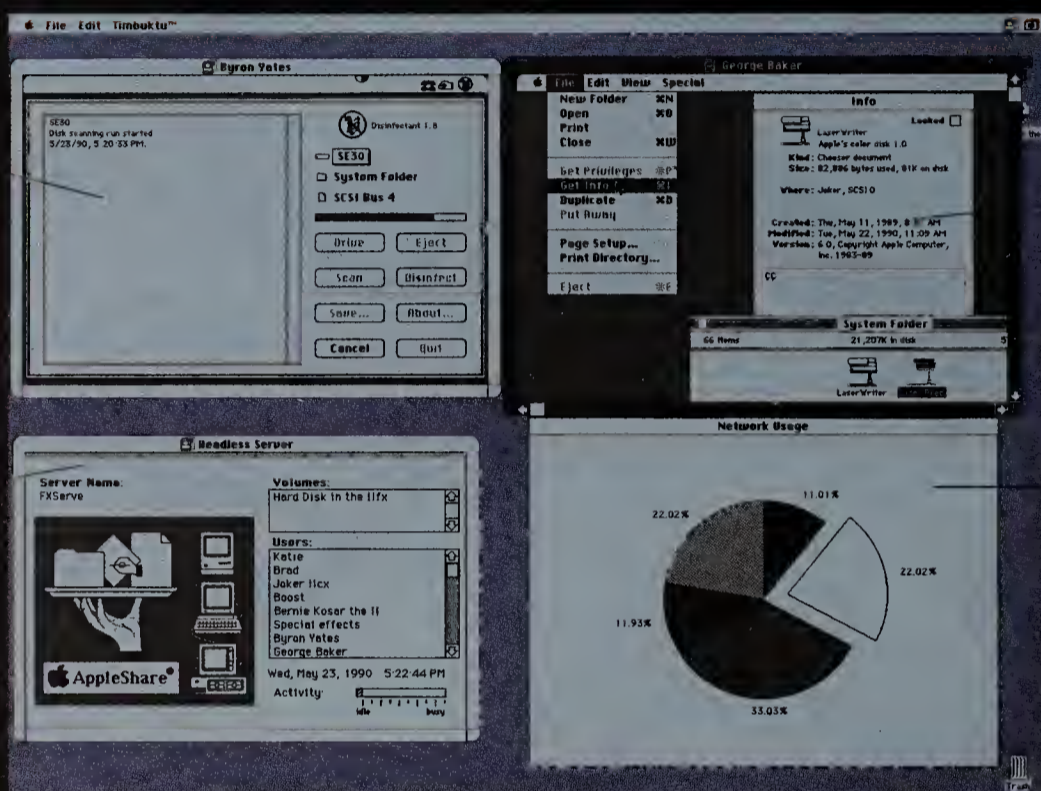
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